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An Address on

THE IMPORTANCE OF SECOND THOUGHTS IN THE MANAGEMENT OF SOME COMMON MALADIES*

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IN reviewing our most interesting and instructive experiences at the bedside and in our consulting-rooms, we all have numerous memories of first-hand impressions that were not borne out subsequently by the course of the cases. No practitioner of medicine can have failed to experience such incidents. The object of this paper is to summon up into the foreground a number of these points of interest, actually experienced by the writer, and to categorize them for practical purposes.

There are many groups of diseases that present to us such similarities in their phenomena that an observer, prejudiced perhaps by his first impression of a case, may on the one hand institute some prompt form of treatment or on the other hand postpone some important action, eventually causing serious disappointment and even regret.

For the purpose of systematizing the subject, it will be of advantage to approach it under three headings, any one of which may involve one or both of the other two in their application. Under each of these headings, a few of the individual considerations will be treated *seriatim*. The three headings to be dealt with are these:—

(1) Subjective symptoms complained of by the patient spontaneously or upon close interrogation.

(2) Physical signs as elicited by the observer in his examination of the case.

(3) Laboratory tests as obtained by reference to physical, chemical, or biological reactions in special diagnostic procedures.

Under the first heading let us consider only a few of the more important ones.

Pain in the right iliac region.—This is a symptom that may be the source of many professional heart-burnings. Its close association with the appendix is liable to induce in the observer such powerful first impressions that second thoughts are liable to be missing in the hurry to have the operating-room put in order. Pain and tenderness in the right iliac region with chill, increased pulse rate, fever, vomiting, splinting of the right rectus muscle, and leukocytosis, have more than once resulted in the removal of a perfectly normal appendix when a careful scrutiny of the respiratory function would have spared a patient with right lobar pneumonia a great deal of operation trauma, considerable expense, and perhaps a premature withdrawal from an otherwise pleasant environment. Possibly in no syndrome are second thoughts more to be cultivated; and these will lead the observer to note the character and frequency of the respirations, the response of the right lower thoracic wall to percussion, and the information gleaned from the physician's *vade mecum*, the stethoscope, perhaps no more than a few crepitations at the right base posteriorly.

*Read before the Calgary Medical Society, December 2nd, 1924.

But let us not put all the onus of this syndrome upon either physician or surgeon. On the contrary, having observed the syndrome and having given second thought to other possible causes, including right sided pyelitis and ureteral calculus, one should not neglect the precious moments of timely surgical intervention by cultivating an unseemly faith in the *vis medicatrix naturae*.

Pain in the right hypochondrium.—What has been said of pain in the right iliac region may be said of pain in the right hypochondrium but one must substitute acute suppurative cholecystitis for acute appendicitis in our first impressions and to add acute suppurative pleurisy to acute lobar pneumonia as a possible contingency for second thought.

Pain in the epigastrium.—Sudden pain in this region associated with tenderness, rigidity, vomiting and facies hippocratica, naturally give one a first impression of perforating gastric ulcer or acute pancreatitis, both of which conditions are essentially surgical. Yet here again, provided the patient is of mature years, a timely observation of a pair of Argyll-Robertson pupils and absent knee and ankle jerks may justify the second thought and some delay in preparing the operating-room. The gastric crises of tabes are non-surgical so far as the attack is concerned at any rate. On the other hand, a perforating gastric ulcer, unless it happen to be a perforation into strong adhesions, or an acute haemorrhagic pancreatitis, will not as a rule respond to a regime of rest in bed, liquid diet, and bismuth and soda every two hours. Physician and surgeon should have their heads very close together in such emergencies with plenty of room for the second thought.

Pain in the hypogastrium.—Pain or pain and tenderness in the hypogastrium may not give either physician or surgeon such alert concern as the syndromes already mentioned. Perhaps the danger is the other way. A hasty examination or perhaps only a perfunctory verbal examination may be made. The absence of vomiting, fever, and other members of the acute abdominal syndrome may tend to give the observer a feeling of security as his first impression. A second thought, however, might lead to the detection of a central bulging mass above the pubes, palpable and percussible, easily relievable in a few minutes with a soft

rubber catheter as the sole instrument of precision. Patients are frequently at a loss to give the required information leading to prompt diagnosis of a full bladder from retention caused by the onset of acute infections or other agencies such as organic and functional nervous disease or an organic obstruction.

Pain in one leg near the knee.—The patient enters the room limping and complaining of pain in one knee. There is difficulty in walking. The knee is examined carefully and nothing is seen or felt that may excite suspicion of trouble in the joint. A diagnosis of strain is made and a liniment is prescribed. A timely second thought before ordering liniment for the knee would lead to an examination of the function of the hip-joint where the real cause of the pain might be found, and the subsequent x-ray might reveal a beginning tubercular caries, or a well defined osteo-arthritis. In the latter case, an enquiry might elicit a history of repeated quinsy.

Pain in one or both legs with spasticity of muscles.—This symptom may be presented by the patient in such a way that the unwary practitioner may assume that he has to deal with that ancient will-o-the-wisp, known as chronic rheumatism. An elaborate and expensive course of dieting and baths at some hot springs may be prescribed. A timely second thought, however, may lead to a close scrutiny of the spine and a careful study of the motor, sensory, and reflex functions. One of three things may be found which would lead to a more rational therapy than hot springs. (1) Pott's disease of the spine; (2) tumour of the spinal cord, or (3) subacute combined sclerosis of the cord. Moreover, in the latter case, a blood-count may reveal the presence of a profound anaemia of the pernicious type.

Vomiting Blood.—There are few more terrifying conditions for an individual than the ejection of blood from the stomach. His whole past life seems to come into his field of vision simultaneously with the blood. Haematemesis gives much concern to the physician and surgeon also. Perhaps the first impression on the patient, and the physician, or the surgeon, is the possibility of cancer; the second impression is that of ulcer. These impressions may be reversed chronologically in the case of younger patients. With opium, ice-bag, and starvation

by the mouth, the symptom usually subsides, and a series of x-ray skiagrams is called into requisition at the earliest possible date. The prompt evolution of the second thought, however, will postpone that expensive procedure until a most careful history is taken and a careful scrutiny of the whole patient is made. One may then draw a shrewd conclusion as to the cause which in one case may be a blood dyscrasia, such as splenic anaemia with a well defined splenomegaly; or in another case cirrhosis of the liver from prolonged worship at the shrine of bacchus, or still in another case a toxic purpura or a purpura haemorrhagica, and associated with it may be found numerous subcutaneous ecchymoses in different parts of the body.

Expectoration of Blood.—This symptom is little less terrifying to the individual than the preceding. It demands careful investigation on the part of the physician. It is not sufficient to assume that it is a sign of phthisis and that treatment should accordingly be instituted along those lines. It is true that the symptom is generally due to that cause but there are enough instances of other causes to justify a second thought which will lead to examination of the heart and of the larynx. Mitral stenosis may be found on the one hand or a benign or malignant growth of the larynx on the other. Moreover, one must have an open mind for the possibility of a leaking aneurysm of the pulmonary artery. The treatment of such conditions is not similar to that of phthisis.

Diarrhoea with bloody stools.—When a patient presents himself with this complaint the busy practitioner may accept the patient's own theory that the cause of the trouble is haemorrhoids. On examination of the anus this opinion is confirmed by the actual presence of piles. An ointment is prescribed and perhaps an operation is recommended or actually performed. The birth of the second thought may lead to closer scrutiny with repeated observation of the stools, perhaps a fluoroscopic examination of the colon with a barium enema, and possibly a further examination with the proctoscope. In such wise, a small easily removable malignant neoplasm of the colon or sigmoid may be discovered, and the surgeon may have the satisfaction of doing a radical cure instead of merely temporizing with

a symptom, which latter course is likely to be followed by disaster.

Persistent vomiting in early infancy.—This symptom may give great concern to the family physician because of the difficulty in getting a suitable food that may be retained by the infant's stomach a few weeks after birth. Before allowing too many weeks of experimentation to pass by, one should summon up the trusty second thought and ask one's self three questions. Is the vomiting projectile as well as persistent? Is there visible peristalsis in the epigastric region? Is there a small palpable lump just above and to the right of the umbilicus that is movable and perhaps variable in consistency? The discovery of such a syndrome will lead to a careful arrangement of feeding combined with lavage of the stomach and the physician will be considering, in the meantime, what surgeon he shall summon to relieve the pyloric stenosis by an operation of choice before malnutrition and marasmus have rendered surgical intervention impossible.

Hoarseness.—The busy practitioner may be approached by a middle aged man who complains of an obstinate hoarseness. With a hasty glance at the posterior pharyngeal wall with a tongue depressor the busy practitioner may dash off a prescription for tincture of benzoin inhalations and caution the patient to stop inhaling his cigarettes. A month later the patient again presents himself with a small lump on one or both sides of his larynx. The larynx is now examined for the first time and a malignant growth is found. It is too late, however. The second thought was delayed beyond the moment when there might have been a reasonable expectation of cure by operation.

Periodical convulsions in middle aged adults.—The patient may give a history of a tumble from a platform or scaffold, followed a few weeks or months later by occasional epileptiform convulsions and difficulty in remembering dates and appointments. X-ray of the head being found negative, a diagnosis of epilepsy may be made and a course of bromides or luminol prescribed. Instead of this procedure, the summoning of a second thought may prove to be much more to the point. A blood Wassermann test and a cerebro-spinal fluid examination may reveal the secrets of a cerebral syphilis, thus accounting for the whole train of symptoms in-

cluding the fall from the scaffold. It is not necessary to mention the advantages of such a discovery to the patient, to the physician, and to the Compensation Board.

So much for these few important symptoms. Let us now consider in similar manner a few important physical signs.

Dulness over a lung with bronchial breathing, bronchophony, and pectoriloquy.—Every one of us has been confronted with this perfectly logical combination of signs where, through some peculiarity in the course of the case, one has been compelled to ask himself, "Is it consolidation or effusion or both?" Usually the combination is so classical that consolidation may well be assumed. With a clinical knowledge of the course of the consolidations, however, the second thought invariably arises and a suspicion of fluid with or without consolidation is excited. The exploring needle, if skilfully managed, will tell the tale but, before undertaking that procedure, a patient study of tactile fremitus on the two sides may reveal diminished or absent fremitus associated with the dulness, bronchophony, and pectoriloquy, not only in children in whom this is the usual order of things but in a very fair percentage of adults. The discovery of such a finding gives one much more confidence in proceeding with the needle. Thus valuable time may be gained in evacuating a fluid that is embarrassing the respiratory function.

Faint, distant, heart sounds.—Before hastily concluding that such a finding by the stethoscope is due to a myocardial degeneration or an emphysema, a second thought will result in a careful percussion of the heart. The area of deep cardiac dulness may be found to be greatly increased to the right as well as considerably to the left and the dawn of a diagnosis of a large pericardial effusion may be at hand. Aspiration and even thoracotomy with drainage of the sac may save the patient's life when digitalis would be utterly inert.

Rapid heart with shortness of breath and vomiting.—A narrow observation of such a syndrome is very likely to lead to a diagnosis of myocardial insufficiency. The wily second thought may come to the rescue and lead to an investigation of the thyroid gland. The gland may not be enlarged or even palpable, yet the whole syndrome may be caused by a perverted

function of that gland in the form of hyperthyroidism, and frequently the least palpable thyroids are the worst offenders. One looks for fine tremors of the outstretched hands, a staring look, or a patch of pigmentation, and one may guess that the basal metabolism is something between plus fifty and seventy. The exhibition of Lugol's solution of iodine usually works wonders while the hasty administration of digitalis may fail utterly.

Slight icterus with gastric symptoms.—Before clearing the decks for belligerent action upon the gall-bladder, it is always desirable to do a careful and complete blood-count. The advent of this second thought may reveal the presence of pernicious anaemia when a blood-transfusion is followed by results vastly superior to those of a cholecystotomy or cholecystectomy. In the absence of a blood dyscrasia, one is better to study such a case by duodenal drainage than to rush to the operating table. This relatively simple procedure, though time-consuming, affords an excellent compromise between doing nothing for the patient and performing an operation that has not sufficient diagnostic support.

Palpable lumps in the abdomen.—

(a) On the first examination of an abdomen, the presence of a small palpable lump is not a justification for a diagnosis of neoplasm demanding immediate operation. It may be only faecal in nature and may have disappeared through the inspiration of the second thought and a subsequent examination.

(b) In an abdomen with average muscle-tone a palpable lump in the right hypochondrium may be found at operation to be only the right rectus muscle. A second thought will result in several modes of resourceful study of the situation before rushing to the table.

(c) Ovarian or other form of abdominal cyst may be the *raison d'être* of a laparotomy that discovers the presence of a hydronephrosis. Careful preoperative thought may lead to a study of the urinary function and a variation in the size of the cyst. The surgical aspect of the case may be materially changed.

(d) In the left hypochondriac region, a palpable lump is usually studied under the aegis of three entities, splenic, renal or colonic tumour. In the presence of an enlarged liver great care must be taken to exclude the possi-

bility of left lobe of the liver as against enlarged spleen. The impressions gained by palpation may be quite misleading. The notch of the spleen is fairly conclusive evidence but even that may be simulated by a liver deformed with numerous metastases.

Enlarged tonsils with irregular fever.—This finding is extremely likely to lead to a diagnosis of septic tonsils with treatment by tonsillectomy. A case is occasionally met with in which such a procedure might lead to subsequent discomfiture for all concerned. The invocation of second thoughts may lead to a routine examination of the lymph nodes and other parts of the body as well as the spleen; this examination may in turn lead to a blood-count the picture of which points unmistakably to leukaemia. In this disease, the hasty employment of tonsillectomy is a great deal less rational than the excision of two rose-spots for the cure of enteric fever.

Lumps in the female breast.—Before proceeding to perform an amputation of a breast for a tumour that is found to be carcinomatous by microscopic section of the tumour or of an adjacent axillary or cervical gland, a second thought will prompt an investigation of the intrathoracic organs, the lungs and the mediastinal glands, by means of x-ray and an examination of the liver for the possibility of numerous deep seated metastases. By so doing the patient's life will not be rendered shorter and the expense and pain of a useless operation may be avoided.

High temperatures that are normal.—Quite frequently, especially in military wards, patients are found to run irregular temperatures suggestive of some bizarre form of infection. Along with this temperature there may be a relatively slow pulse. The respiration rate may be considerably accelerated. Before accepting the gospel of the chart it is well to give a second thought to the technique of the nurses who take the temperature and it may be found that the patient is given the thermometer to hold in the mouth while the nurse wanders far afield in the pursuit of her duty in another part of the ward. This is the moment that is seized by the malingerer to perpetuate his residence in hospital. A hot water bottle, an electric-light bulb, or an adjacent radiator does the trick. By stringent orders to the nursing staff, the patient is watched by the nurse during the taking of the

temperature and the subsequent chart becomes extraordinarily uninteresting. The question of pensionability is profoundly altered.

Absent knee-jerks that are present.—It is frequently found that the knee-jerks are declared to be absent when a wholly incorrect technique has been used for the purpose of eliciting them. Testing the knee-jerks is a technical procedure demanding as much care as a long straight drive off the tee. Perfunctory methods are worse than useless. The patient should be comfortably placed in the sitting or prone position, the knee muscles semiflexed, and all the leg muscles fully relaxed. The hamstring tendons are the indicators and the left hand of the examiner should support these in order to ensure complete relaxation before making the test. A sharp tap on the patellar tendon will then usually elicit the knee-jerk if it is present. If it does not, absence of knee-jerk should not be diagnosed until the reinforcement test is added. If the patient is well enough to assume the sitting posture with the legs hanging loosely, this position should be tried under reinforcement if there is any doubt of the test made in other positions. With active second thought on the part of the examiner, activity of the patient's knee-jerks may be demonstrated in the face of previously alleged absent knee-jerks. A hasty diagnosis of tabes with all its attendant troubles may thus be avoided.

Blood in the urine.—This sign does not necessarily bespeak or even encourage operative procedure upon the genito-urinary tract. Carcinoma of the kidney or bladder, tubercle and stone of the kidney or bladder, and polypus of the bladder may cause haematuria without pain of importance. So also does subacute infective endocarditis and before hastening to explore or excise a kidney that may be slightly tender on pressure, a second thought may be of the very greatest value if it results in a discovery of a little irregular temperature, of some petechiae around the shoulders, of definite or indefinite signs of valvular disease of the heart, and of a palpable spleen.

Let us now turn to the third and last heading of our subject and discuss briefly a few laboratory tests.

Gastric Analysis.—Before the use of the fractional analysis of the gastric contents became established, the old conventional gastric analysis

following a test-meal was the subject of frequent and justifiable doubt. The acid curve of the newer method, however, has given us something of more satisfying value. Bearing in mind that the coefficient of acidity in human stomachs is very variable and largely idiosyncratic, the presence of a pronounced hyperacidity may indicate in some measure the presence of a duodenal ulcer with its consequent pylorospasm. This hyperacidity may, on the other hand, be present in pyloric stenosis from carcinoma when the growth has not invaded the secreting glands of the stomach. Furthermore, complete absence of free hydrochloric acid in the fractional test does not necessarily spell carcinoma of the stomach wall. It is a finding that is more likely to be associated with pernicious anaemia. It has been found in the case of myocardial insufficiency with pronounced symptoms of cardiac failure. A blood-count will usually show the distinction between a primary and secondary anaemia.

This discussion of the gastric analysis only goes to show the limitations of the procedure and to impress one with the value of second thoughts and pursuance of a diagnosis along additional lines. The patient is placed in a good light in the prone position and the observer watches the abdomen intently for some minutes from the foot of the bed. The presence of visible peristalsis in the region of the epigastrium will be of the utmost importance in arriving at a definite diagnosis of pyloric stenosis. This together with the presence of a doubtfully palpable mass in the pyloric region together with fluoroscopic filling and emptying defects would be strong evidence in favour of malignant disease in an adult stomach. Visible peristalsis occurs normally, or rather independently of disease of the stomach or bowel, under two conditions only, ventral hernia following laparotomy and separation of the recti muscles.

Leukocyte Counts.—These are frequently employed to establish a diagnosis. It has been stated that a leukocytosis never occurs in typhoid fever. On more than one occasion the writer has found this to be incorrect. Recently it has been shown that in order to obtain reliable information from the leukocyte count it should be taken repeatedly at definite times after the ingestion of food. The perfunctory leukocyte count that is done without proper consideration of the possible fallacies may give very erroneous

information. An unnecessary or even inadvisable operation may be performed when the second thought demanding a control leukocyte count or two might change the whole aspect of the case.

Positive Wassermann.—In the routine of practice there are many obscure conditions that defy one to arrive at a final diagnosis by ordinary bedside methods. The Wassermann test is done and found to be one plus, two plus, or three plus. The first impulse then may lead one to proceed with a vigorous antiluetic treatment with the objective of rendering the Wassermann negative at all costs. On second thoughts, however, one may stop, look and listen for a moment and enquire whether the patient may not be better off with a positive Wassermann and a prolonged vacation than a negative Wassermann and the general health lowered to a minimum of resistance. Very frequently the former position is more satisfactory for all concerned. Tonic measures with tonic doses of mercury in some old luetic conditions are far more constructive than an overzealous pursuit of a negative Wassermann. It is better to have a positive patient with a positive Wassermann than a negative patient with a negative Wassermann. Moreover, it is unwise to proceed with antiluetic measures in a patient having no other positive sign of syphilis than a single positive Wassermann test. There is always the chance of error and second thoughts demand the exclusion of that chance by one or more controls. Avoidance of prolonged strain and insistence upon regular vacations are as important measures in the management of old luetics as specific medicinal treatment itself and in a fair percentage of cases they are more important.

Sugar in the Urine.—Not many years ago the writer heard Cammidge of London state before the Royal Society of Medicine that he was quite sure that in various parts of the world thousands of people had been condemned to diabetic diets who had never had diabetes. The graduates of our colleges had for the most part, until the last few years, very little sense of proportion as to the significance of finding a positive Fehling test for sugar in a sample of urine. The discovery was often made in a life insurance examination and the applicant was turned away forthwith, filled with dismay, and was placed on a diabetic diet consisting mostly of protein.

Second thoughts have been beautifully embodied in the work that has been done in blood-chemistry, leading up to the discovery of insulin. Diabetic diets, torn from the sheets of a diet book, should not be prescribed without a careful study of the individual that happens to be found with a positive Fehling. Every newly discovered glycosurie is potentially a hospital case. The study of the carbohydrate tolerance and the renal threshold for glucose, the estimation of the blood and urine sugar periodically under gradually built up diets, and finally the balancing of an optimum diet are essential to the management of such cases. They require usually a minimum of one month in hospital before they are justified in going back to their own devices.

X-rays.—In the hurry and worry of professional life there is hardly enough time or enough recompense to encourage the busy practitioner to make careful, detailed histories and to make systematic, detailed examinations of all patients. Thus it is that the x-ray tempts the practitioner to take a short route to diagnosis by radiographing some part of the body that is apparently at fault in some vague respect. As a result, hasty and regrettable action may be taken on the x-ray

report. The more one sees of specialism, the more one realizes the need of generalism in diagnosis and treatment. After all, the x-ray is only one physical sign added to those that may be determined by the observant practitioner. One swallow does not make a summer nor does one physical sign necessarily make a final diagnosis. The patient as a whole must be considered. The clinical picture is made up of distance blue as delineated in the family history, the mid-distance as outlined in the previous history of the patient himself, the foreground as represented by the social and occupational environment, and the centre of interest as portrayed in the person of the patient under the control of his psyche. Such a complexity of paint and technique is not to be gazed upon and judged lightly or thoughtlessly. Meditation of the picture is demanded and in this somewhat monotonous brief for second thought in the management of some common maladies, one may find a plea for that type of efficiency in practice that is based not upon hasty conclusions and perfunctory action but upon a wholesome system of observation, meditation, contemplation, and orientation.

Changes in the Liver Associated or Coincident With Infection of the Appendix.—In the course of studies on the liver in relation to chronic abdominal infection, Charles Gordon Heyd, New York, was surprised to note the frequent association of various degrees of hepatic change in the presence of chronic abdominal infection. A chronically infected appendix was construed as one that showed either polymorphonuclear or round cell infiltration, together with varying degrees of fibrous tissue hyperplasia or obliteration by fibrous tissue replacement. The appendix, in the cases representing Heyd's study, was the only organ at fault, and was proved to be the cause of the symptoms of which the patient complained. The association of thrombosis of the portal vein with acute septic conditions of the right lower quadrant has been of such frequent oc-

currence as to require no comment. There is a constant absorption of bacteria or their by-products by means of the venous tributaries of the portal system and a subsequent conduction to the liver and upper abdomen. Bacteria carried to the liver do not undergo proliferation but are destroyed in the liver tissue, resulting in a chromatolysis and vacuolization of the liver cells, with the formation of free pigment. Coincidentally, there is an invasion of round cells or polymorphonuclear cells, or both, and the total result is a small area of local degeneration or necrosis. This is followed by absorption of the degenerative cellular debris and the development of fibrous tissue, with an increase in the fibrous tissue of the trabeculae of Glisson's capsule.—*Jour. Am. Med. Ass.*, Nov. 1, 1924.

MUCOUS CYST OF CAECUM (CONGENITAL); PRIMARY
INTUSSUSCEPTION; GENERAL CONSIDERATIONS*

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MALE child eight months old; birthplace, Canada; referred by Dr. F. C. Swaine and Dr. A. D. Blackader on May 24th, 1923, with diagnosis of intussusception.

History.—A breast fed baby (first born) with reinforced feedings since five months of age of a milk and cream mixture. Shortly after the institution of the mixed feedings an attack suddenly developed lasting twenty-four hours in which there was apparent colic with straining but no stool, vomiting of all food taken, some abdominal distension, and elevation of temperature to 102° F. This attack was relieved by the administration of milk of magnesia which was followed by a small bowel movement with much flatus. For the succeeding month the child was normal and gained weight. Then a similar attack again developed which lasted forty-eight hours and was relieved by olive oil producing a bowel movement with much flatus and streaked with bright blood.

For the past two months the child has been fretful from digestive disturbances, i.e.—eructations after feeding, irregularity of bowel movements and loss of weight.

The present illness developed five days ago with fretfulness and ineffectual bowel movements. On the second day there was vomiting, slight abdominal distension, no bowel movement, and continuous crying. On the third day there was still no bowel movement. On the fourth day medical advice was sought for the first time. Oil enemata were unsuccessful. On the fifth day Dr. Blackader was called in consultation and under chloroform anaesthesia palpated a mass in the left side of the abdomen and by digital examination of the rectum discovered an indefinite fulness in the upper portion of the pelvic gut. Temperature 102 3/5°, pulse 132, respirations 28.

*Delivered before the Peterborough Medical Society, September 18, 1924.

Operation.—The anaesthetic employed was open ether; the duration of the operation one hour and fifteen minutes. Right paramedian incision three and a half inches long opposite umbilicus. On opening the abdomen fluid escaped in small quantities. Palpation revealed a mass in the pelvis connected with the rectum. A portion of the mass was doughy, but there was a part the size of a walnut which was distinctly firm. Manipulation with two fingers of one hand permitted of the unfolding of the mass by tracing up the descending colon, across the transverse, and down into the caecal region. It was then possible to deliver the mass which proved to be an ileo-caecal intussusception; this was unfolded by expression. This left the aforementioned hard mass still present, situated on the inside of the medial wall of the caecum just above the ileo-caecal valve. The mass was firm, elastic and apparently there was some tumour formation extending into the lumen of the caecum. Although the intussusception was entirely unfolded the presence of this tumour compelled a resection. Therefore, the ileo-caecal angle was resected and lateral anastomosis done of the terminal ileum and the lower portion of the ascending colon. The anastomosis was done in an anti-peristaltic direction; the sutures used were No. 00 chromic gut throughout, the third layer of haemostatic stitch being applied to the posterior side of the anastomotic ring. After the anastomosis was completed the intestine was returned to the abdomen, the abdomen closed in layers, No. 0 chromic gut being used for the peritoneum and posterior sheath; No. 1 chromic for the anterior sheath; S.W.G. in figure of eight for the skin and anterior sheath. Prior to closure the abdomen was filled with Ringer's solution. After applying dressings the child was turned on the face and 40 cc. of Ringer's solution introduced into the interscapular region subcutaneously.

Post-operative care.—Sips of water only for forty-eight hours, then breast milk in small quantities at long intervals; to be gradually increased in quantity and frequency. From the fourth day the breast milk was reinforced by a milk mixture. Distension and gas colic relieved by frequent introduction of rectal catheter which was more effectual than an actual enema. The wound healed without infection in spite of soaking of dressing with urine. Baby erupted two teeth during the first post-operation week and two-grain doses of phenacetin were given to control the restlessness associated therewith. During the convalescence the child was comfortable and happy, and fed well; the bowels were regular. It gained two pounds in the first five weeks, and at the age of one year weighed twenty-one pounds; a gain of nine pounds in seven months; it had no digestive disturbances, but was somewhat constipated.

Description of specimen by Dr. L. J. Rhea, Pathologist, Montreal General Hospital:

"The specimen consists of the lower 3.5 cm. of the ileo-caecal angle with the vermiform appendix attached which latter shows no gross lesions. Attached to the ileum and caecum is a small portion of mesentery in which the lymph nodes are palpable but apparently normal.

"Externally the specimen is of a pale colour; there is considerable oedema of the walls, but neither gangrene nor ecchymosis. The blood vessels in the mesentery show no evidence of thrombosis. Along the mesenteric attachment of the small intestine and immediately adjacent to it the peritoneal surface of the small intestine is flush with the peritoneum of the caecum. (See Fig. 1). On the opposite side, however, a portion of the small intestine apparently dips into the caecum forming a definite groove 2 cm. deep. The walls of this groove are formed by the caecum on one side and the ileum on the other. There are no adhesions between these walls, and the groove cannot be obliterated by pulling upon the ileum. The diameter of the small intestine appears to be normal. (See Fig. 2).



FIG. 1.—Anterior aspect showing smooth contour at ileo-caecal junction. Note bulging of caecum from contained cyst.

"On palpation a mass is felt within the caecum. The lateral wall of the caecum moves freely over this mass. When the lumen of the caecum is viewed from above there is seen a round, slightly rough, dark red mass which protrudes into its lumen. The mass is in the region of the ileo-caecal valve.

"The lumen of the small intestine is continuous with that of the caecum. It is greatly narrowed and crescentic in shape opposite the tumour in the lumen of the large bowel.

"The tumour mass is 3 cm. in diameter, definitely cystic, and from it 9 cc. of dark brown thin fluid are removed by needle leaving a cavity whose lining is smooth, and whose wall averages 3 mm. in thickness. (See Fig. 3 and 4). The mucous membrane over this mass, and that covering the ileo-caecal valve and caecum immediately adjacent to it show discoloration but no necrosis. The mucous membrane of the remainder of the specimen seems normal save for a considerable amount of oedema.

"Bacteriological examination of the cyst contents showed an abundant and mixed bacterial flora, with the *B. coli* predominating.

"Microscopical examination of the fluid showed a homogeneous liquid with a few desquamated epithelial cells, bacteria, but no crystals.

"Histological preparations were made from complete sections of the cyst wall taken from the cut margin opposite the area of attachment to the intestinal wall. One specimen was imbedded in celloidin and one in paraffin, and sections stained with eosin and haematoxylin."

From the intestinal (outer) to the cystic (inner) surface the following structures were recognized: (See Fig. 5).

1. *Mucous membrane with glands.* The type of gland is the simple tubular structure as found in the caecum. The lining cells are columnar. The interglandular tissue is oedematous, with haemorrhagic injection and round cell infiltration. There is no frank necrosis.

2. *Submucosa.* A thin layer of connective tissue showing chronic inflammatory changes and oedema.

3. *Two distinct strata of muscle fibres,* with those of the outer layer placed at right angles to those of the inner. There are areas of lymphocytic infiltration. The muscle cells are large, slightly swollen, with elongated ovoid nuclei.

4. *An incomplete fragmentary layer of muscle cells,* immature in appearance, in parallel rows, with axes parallel to those of the cells in the adjacent complete muscle layer.



FIG. 2.—Postero-median aspect. Note groove at ileo-caecal junction.

5. The innermost zone is represented by a single surface layer of cuboidal epithelial cells with large deeply staining central nuclei, resting on the muscle cells of layer four. Layers four and five, the two inner strata of the cyst wall, show invasion by inflammatory wandering cells.

Diagnosis.—Retention cyst of the wall of the caecum, with haemorrhagic oedema and chronic inflammation. There is no evidence of neoplasm nor of necrosis. The cyst is believed to be congenital in origin.



FIG. 3.—Bowel wall split disclosing cyst attached to medial wall of caecum and to upper leaf of ileocaecal valve.



FIG. 4.—Cyst wall divided showing thickness of wall and smooth lining of cavity.

This case is of interest not only because of the comparative rarity of congenital mucous cysts of the intestine, but because of some lessons which can be learned from a review of the clinical history and also because at such an early age resection was followed by recovery. Recurring attacks of severe colic with vomiting, abdominal distension, and constipation, followed by sudden relief afforded by a bowel movement with abundant flatus and especially if the stool be blood streaked should permit of the diagnosis of some form of mechanical obstruction. The

absence of digestive disturbance in the intervals between attacks would further confirm the diagnosis. In each of the attacks there was observed a considerable rise of temperature. This might lead to a diagnosis of acute appendicitis but the absence of localized tenderness and still more the laws of probability are against this diagnosis in

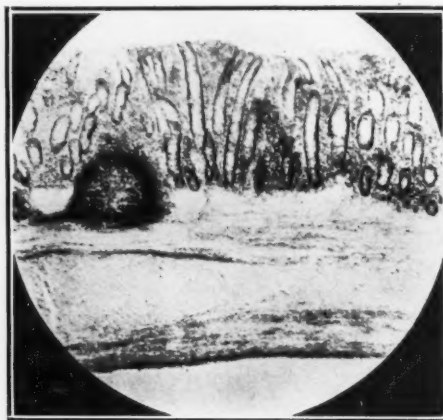


FIG. 5.—Histological section of cyst wall.

young infants. Appendicitis is extremely rare in children under two years of age except in the occasional case of the appendix forming the content of an inguinal hernial sac.

Intestinal resection and anastomosis is a formidable operation to impose upon an infant, and the mortality is high. Dowd, in 600 collected cases of intussusception reported in 1913, quotes eight cases of recovery after resection in infants under one year. Perrin and Lindsay, (*British Journal of Surgery*, 1921), studying 400 consecutive cases of intussusception in the London Hospital in eighteen years state that in no case under three years of age was resection followed by recovery. However in a review of the literature of the past five years one finds an encouraging number of recoveries. My personal experience has been fortunate, having had three cases with three recoveries in children aged five, eight and twenty-seven months.

As successful treatment is the ultimate object of all our study it might be worth while to spend a few minutes considering *technique and procedure* adopted.

1. The anaesthetic.—Open ether is my choice, possibly with chloroform induction. As soon as anaesthesia is established a soft rubber cath-

eter is passed into the stomach and the child inverted to permit stomach contents to escape and to prevent regurgitation into the pharynx with the associated dangers of inhalation pneumonia. Through this catheter, at the conclusion of operation, a lavage of the stomach is practised.

2. Maintenance of body heat.—The operating room should be maintained at an uncomfortably high temperature, the child's limbs wrapped in wadding, and a minimum exposure of abdomen both as to extent and time consumed in preparation. Rapid and delicate manipulation of the intestine, with absolutely no evisceration.

3. The incision should always be a vertical one through the rectus muscle to permit of closure in layers. Otherwise the sutures are likely to cut through with tearing open of the wound.

4. Restoration of the balance of body fluids.—These infants are dehydrated by the vomiting and inability to retain any fluids. Artificial sera, Ringer's solution with or without glucose should be given in large quantity at or immediately following upon operation. Intravenous routes may be used, either the external jugular vein or the longitudinal sinus if the fontanelle remains patent. Subcutaneous infiltration does not permit of the introduction of sufficient quantity. My own choice is to fill the belly with Ringer's solution just before the last stitch in the peritoneal suture is tied. This is done rapidly and a large quantity can be used without any prolonging of the period of anaesthesia.

5. Immediate after-treatment demands constant nursing, water by mouth freely but in small quantities, judicious feeding after twenty-four to forty-eight hours, preferably by breast milk, relief of distension by enemata or rectal tube, infrequent dressing of the wound with early removal of skin sutures and protection of the abdominal wall by a swathe of adhesive plaster.

Statistical survey.—In 1913 there was admitted to the Montreal General Hospital an infant ten weeks old in which was found at operation a secondary intussusception due to the presence of a congenital mucous cyst of the caecum attached to the wall opposite the ileo-caecal valve and almost completely blocking the lumen. At that time Dr. A. D. Blackader reported the case in the *American Journal of Diseases of Children*,

August, 1913, volume vi, page 99. His search of the literature to date revealed no instance of an exactly similar condition in an infant. In autopsy on a girl eleven years old, Sainsbury discovered a cystic tumour in the caecum (1887). In 1903 Krogus reported a cystic tumour of the ileum in an infant two months old giving rise to intussusception. He also cites four cases reported by various authors in which cystic tumours caused intestinal obstruction. They were in individuals of a few days old, three years old, sixty-two years old and fifteen years old respectively. In the three year old the cyst was in the mesentery causing obstruction of the ileum by pressure and may be excluded from consideration. Two other cases referred to in Blackader's paper are of associated interest, one a cystic dilation of the appendix protruding into the lumen of the caecum, the other a cyst in the wall of the ileum supposedly connected with an incompletely obliterated omphalo-mesenteric duct.

A review of the literature from 1913 to 1924 revealed a fair number of references to "enteric cyst", "papilloma of ileo-caecal valve", "cysts of intestine", etc., but before these had been individually studied by me I discovered an article by H. F. McAuley (*British Journal of Surgery*, July, 1923, volume xi, page 122), reporting a similar case to the one at present under consideration. In a thorough review of the literature he accumulates a total of twelve cases (including those referred to above) and argues for the defining of the condition as a definite disease entity. These cases of enterogenous cyst producing symptoms of obstruction, incomplete or complete, are discovered at autopsy or operation, and are usually diagnosed as irreducible intussusception; their identity is only established on examination of the resected specimen. Frequently they are associated with, and are the actual cause of intussusception which condition may ensue with or without preceding attacks of an incomplete and transitory obstructive nature. Intussusception arising under these conditions is of the secondary type and it is easy to understand the mechanism of development in the presence of tumour formation projecting into the lumen of the bowel or of irregularities of bowel diameter such as in ulcer or stenosis. Secondary intussusception may occur at any age and in any portion of the intestinal tube.

But of greater interest are the cases of so-called *primary intussusception*. An extensive bibliography is available for the study of this condition but in my opinion the most concise and satisfying article is by Perrin and Lindsay published in the *British Journal of Surgery*, July, 1921, volume ix, page 46, from which I will quote freely and to which I desire to make full acknowledgement. Their monograph is based upon the records of 400 cases of acute intussusception admitted to the London Hospital during the eighteen year period from 1903 to 1920 inclusive.

The term *acute intussusception* is used to define that type of case in which the symptoms are severe, the strangulation of the intussusception early and complete, and in infants, if untreated, resulting in death with gangrene of bowel in about six days. *Chronic intussusception* on the other hand has a history of some three weeks duration; the symptoms are not urgent; strangulation and gangrene do not ensue.

The theories of the mechanics of development of intussusception include the following: (a) Perverted or irregular peristalsis. (b) Paralytic conditions of isolated loops permitting of a proximal loop becoming engulfed. (c) Irregularities in the lumen or wall (tumours, ulcers, stenosis) permitting the distal bowel to grasp and drag upon the proximal gut. This last group must be classed as *secondary intussusception*.

But in *primary intussusception* no pathological lesion is found. Moreover in almost every instance the disease occurs in particularly healthy and well nourished individuals with no antecedent or associated intestinal disease. A most fascinating problem is therefore presented in attempting to explain the etiological incidence for it is self-evident that the theories of perverted peristalsis and paralytic conditions of the bowel do not satisfy.

Primary acute intussusception occurs in males in about 65 per cent of all cases. Age incidence, see Fig. 6 (Perrin and Lindsay). 78.5 per cent were under two years of age. 69.75 per cent were under one year of age. Analysis of the cases occurring under one year shows a rapid rise of the graphic curve until the fifth month is reached, a fairly well sustained high level until the ninth month, then a rapid fall to the twelfth month. Of all cases occurring during

the first year of life 72.7 per cent are between the fifth and ninth month; or in other words 50 per cent of all cases in whatever age occur between the fifth and nine months.

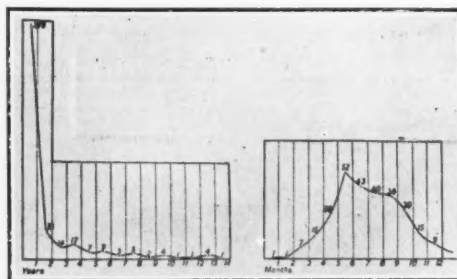


FIG. 6.—Age incidence by years and first year by months.

There is no etiological relationship between intussusception and seasonal or epidemic diarrhoea, except, perhaps, in the intussusception of the colic variety. In fact a history of diarrhoea is notable by its absence; conversely, the emaciated and marantic babies suffering from diarrhoea do not present with intussusception. This fact of itself negatives the theory of perverted and irregular peristalsis being a fundamental factor in the production of intussusception.

Types.—Much confusion has arisen in the terminology describing various types of intussusception. Fortunately most authorities are now agreeing on a simple classification, i.e.,—*Ileo-caecal*; the valve forming the apex. See Fig. 7. (Perrin and Lindsay). *Ileo-colic*; an

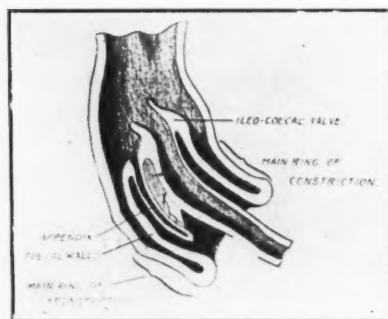


FIG. 7.—Ileo-caecal intussusception.

enteric intussusception beginning close to the valve (1-14 inches), the apex passing through the valve and dragging after it valve, caecum and appendix as part of the returning layer. See Figs. 8 and 9, (Perrin and Lindsay). *Enteric. Colic. Compound*; where any one of the

simple types becomes arrested and then is engulfed *en masse* into the distal bowel.

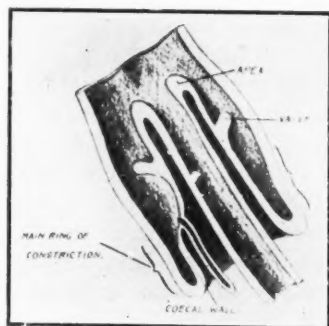


FIG. 8.—Ileo-colic intussusception.

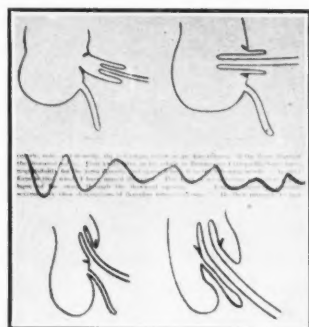


FIG. 9.—Steps in the development of ileo-colic intussusception.

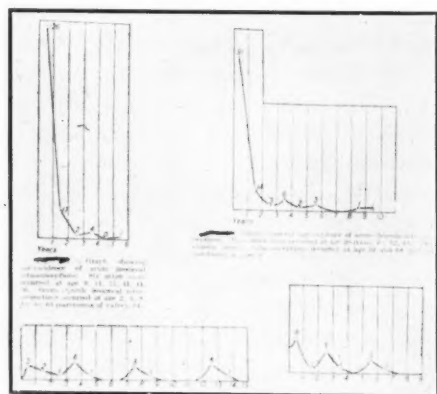


FIG. 10.—Acute intussusception. Age incidence of the four simple types. Ileo-caecal, ileo-colic, enteric, colic.

Frequency of different types.—Of the 400 cases studied by Perrin and Lindsay roughly 46 per cent were ileo-caecal; 37 per cent ileo-colic; 10 per cent enteric; and 5 per cent colic. Age incidence of each variety. See Fig. 10, (Perrin

and Lindsay). Of the total of 156 cases of the ileo-caecal variety, 126 (80 per cent) occurred in the first year of life; seventeen (11 per cent) in the second year and negligible numbers in succeeding years. Of the total of 126 cases of the ileo-colic variety, 72 per cent were in the first year, 11 per cent in the second year. Of the enteric type, total twenty-seven cases, twenty were met with before the age of fourteen, whilst in the colic type, nineteen in number, all occurred before the eighth year. It has been demonstrated therefore that of all intussusceptions 78 per cent occur in the first two years and that 83 per cent are of the ileo-caecal and ileo-colic variety.

In the admirable paper by Perrin and Lindsay of which this is practically an abstract the explanation is based upon anatomical facts.

First. In a child three months old the abundant development of lymphoid tissue in the ileo-caecal region causes a projection of the ileo-caecal valve into the lumen of the caecum. Moreover, the diameter of the caecum is at birth but a few millimeters greater than that of ileum (D'Arcy Power). Lymphoid tissue is present as a studded collar in the terminal six inches of the ileum, above which point there are but isolated Peyer's patches. The amount of this lymphoid tissue in both situations rapidly decreases and at the age of one year shows a marked difference. See Figs. 11, 12, 13, (Perrin and Lindsay). There is then a very definite relationship between the age incidence of intussusception in this region and the presence of redundant lymphoid tissue. Moreover it is well known that of all portions of the intestinal tract the ileo-caecal region is the most abundantly supplied with lymphoid tissue and this fact coincides with the relative frequency of intussusception in this region to the disease elsewhere.

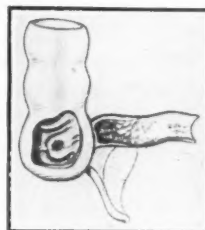


FIG. 11.—Ileo-caecal region of infant three months old. Note the mucosa of terminal ileum studded with lymphoid tissue and projection of ileo-caecal valve into lumen of caecum.

Further analysis of age incidence in the first year by months shows 72 per cent between the fifth and ninth months or at a period when artificial or reinforced feeding is frequently begun, with the digestive disturbances incidental thereto, added to which is the further factor of this being the teething period.



FIG. 12.—Histological section of ileo-caecal valve of child age three months. Note abundance of lymphoid tissue. Compare with Fig. 13.

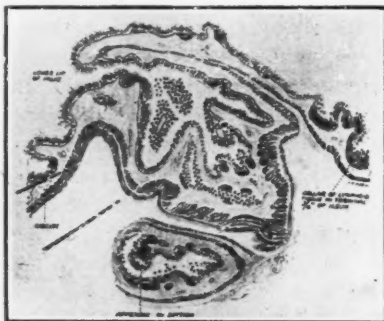


FIG. 13.—Histological section of ileo-caecal valve of child aged one year. Compare with Fig. 12, noting marked decrease in lymphoid tissue.

It is not unfair to assume that associated with these minor upsets of the digestive tract there should be an increased activity with hyperplasia and oedema or swelling of the lymphoid tissue. These masses project into the lumen of the gut, touch the opposite wall, act as an irritant or "foreign body" and excite peristalsis in exactly the same manner as would a cyst, tumour or polyp; in fact the intussusception is "secondary" and not *primary* after all. The theory is further substantiated by the absence of relationship between intussusception and diarrhoea. In the latter disease there is such rapid dehydration that the lymphoid tissue is shrunken rather than swollen.

Diagnosis, treatment and mortality will be disposed of in few words. All diagnosis is based upon the laws of probability. Given therefore a male child, plump and well nourished, between the ages of five to nine months, teething, being weaned or receiving reinforced feedings, and especially if exposed to seasonal variations of inclement weather, who suddenly develops severe abdominal pain with vomiting, and inability to move the bowels, acute intussusception should at once be thought of. The onset is sudden. Pain is severe and intermittently colicky in character accompanied by drawing up of the legs, straining, with the passage of faeces until the lower bowel is emptied, then of bloody mucus. The amount of blood varies from slight streaking to a considerable bleeding. The blood is always bright red. All food and drink is usually refused or immediately vomited if taken. A condition of collapse soon ensues, induced by pain, peritoneal shock and dehydration. The child's face is pinched; the pulse is small and rapid; the temperature is subnormal. The younger the child the more rapidly desperate does the condition become.

Physical examination of the abdomen.—There is comparatively little distension in spite of the complete or almost complete obstruction. The frequent straining keeps the distal bowel emptied while the associated vomiting empties the proximal intestine. In a large percentage of cases (60 to 100 in different series) it is possible to palpate a mass which is fusiform in shape. This mass may occupy different areas of the abdomen according to type and duration of the intussusception. The mass can be discovered only during the intervals between the colicky attacks. During these periods the abdominal wall is rigid. It may be necessary to administer an anaesthetic to successfully palpate the mass and in occasional instances it can be conceived that even under these favourable conditions a mass lying well up beneath the liver or in the splenic region might escape discovery. In the presence of typical onset and symptoms the inability to palpate a mass should not influence the positive diagnosis.

Rectal examination will often reveal the apex within reach of the finger and even protruding through the anal orifice. This sign is more frequent with the ileo-caecal than with the ileocolic variety and it is remarkable with what

speed the intussusception will travel to this site. In one case (seven and a half months old) of our small series at the Montreal General Hospital the mass was palpable in the rectum four hours after the onset. In young infants an anaesthetic is required for rectal examination; otherwise, there is danger of over-stretching or tearing of the spineter. In my opinion however, it is advisable that an anaesthetic for examination only should not be given either for palpation of mass or rectal exploration. These procedures can be carried out when preparations have been made to operate. The diagnosis can be made from history and symptoms.

Treatment.—Mortality is absolutely dependent upon one factor, i.e., the duration of symptoms. The size of the intussusception has no influence. Therefore as soon as the diagnosis is made operation should be performed. And this rule holds good in spite of the occasional reported success obtained by inflation and reduction by enema. It is obvious that the unsuccessful attempts are not reported. It would be as sensible to advise expectant treatment because some cases have recovered after spontaneous sloughing off of the intussusception. The operation done upon the intussusception is the one demanded by the conditions found and is not one which may be left to the surgeon's choice. In cases recognized early, reduction by manipulation is almost always possible. If the progress of the apex down the gut has been rapid and extensive the reduction is effected by two fingers within the abdominal cavity until it is possible from the size and mobility of the mass to deliver it through the incision. The final unfolding should be done in full view in order to determine the viability of that portion of gut which formed the apex. Reduction should always be effected by expression, never by traction. In acute intussusception further operative procedure is demanded because of death, partial or complete, of some portion of intestinal wall. In ileo-caecal and ileo-colic types the appendix is the earliest to suffer in this respect and may be the only part requiring removal. When the completely reduced gut shows an area of gangrene or non-viability resection with anastomosis is demanded. Or reduction may be impossible because of gangrene

and matting together of the various layers. When resection is necessary in acute intussusception care should be taken to divide the bowel well beyond the apparent limits of the non-viable portion, as thrombosis of the mesenteric vessels is liable to extend. Indeed quite a few deaths are due to gangrene and perforation where complete reduction has been possible but the hope of the operator that the bowel will recover has not been realized. I stress this point because of the possible temptation to do an operation which consists of opening the intussuscepiens in the long axis and amputating the intussusceptum. (This operation has its field in selected cases of chronic intussusception without complete obstruction and with no marked strangulation, where reduction is impossible only because of adhesions present between the opposed peritoneal surfaces of the entering and returning layers.)

Mortality.—Untreated by operative measures the mortality is 100 per cent with the exception of those fortunate accidents which result in recovery from inflation, enema or spontaneous sloughing and separation of the intussusception. In different reported series the total mortality averages 40 per cent but there are wide variations. In simple reductions Perrin and Lindsay report 22 per cent; with appendectomy, 33 per cent; resection with suture, 68 per cent; resection with Murphy button, 100 per cent; and in desperate cases in which Paul's tubes have been used, 100 per cent. The rising percentage is not due to the operation *per se* but to the condition which demands the more radical and elaborate procedure.

The only factor which influences the mortality is the duration of the interval between onset and operation hence the necessity for early diagnosis and prompt treatment. Attention must be drawn to the hyperpyrexia which follows operation in many instances. This is undoubtedly due to absorption of toxic material from that portion of bowel whose circulation has been more or less interfered with, and this again is dependent not upon the size of the intussusception but upon the duration of symptoms.

There are many other details which might be discussed but time forbids.

A CASE OF PIGMENTED HAIRY NAEVUS OF THE NOSE, WITH PIGMENTED HAIRY AND WARTY NAEVUS OF THE CHEEK AND LIP. MULTIPLE AUTOPLASTY. CURE

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THE case that I desire to report in this paper, does not offer anything very new, with regard to the operative procedure employed to remove the naevus in question. I would simply draw a comparison between the different surgical methods, at our disposal, and at the same time say a few words on the use of physical agents, for this kind of affection. For the choice of my autoplasty, I was especially influenced by the remarkable works of my regretted master Morestin, and the experiences I personally acquired in facial surgery during the recent great war. The history of my patient is as follows:

Case report.—Miss A. M., nineteen years of age, consulted me on the 24th of January, 1920, for a pigmented hairy naevus of the face. Aside from the fact that this was a congenital affection, there was nothing in her personal or hereditary antecedents that could present any interest.

On making the examination, I observed that the nose, on both sides, was covered with smooth pigmented areas on which were implanted numerous hairy follicles. These irregular areas began at the orifice of the nostrils and finished at the root of the nose near the inner canthi and eyebrows; the pigmentation stopped a little in front of the groove between the nose and cheek, on the left side. The nose was very much increased in volume, especially in the lower part, and notably on the right.

The right cheek was covered by a vast hairy and warty naevus of a blackish colour and was fairly regular in form. It can justly be compared to a rectangle resting on the nose, being seven centimetres long by four centimetres wide. Its upper limit spread over the cheek in the direction of the ear, about twelve millimetres from the ciliary edge of the lower eyelid, in its middle part.

The right side of the upper lip was likewise covered with a pigmented hairy and warty naevus joining that of the cheek. Near the ala of the nose existed a small band of healthy skin. The right half-lip was increased in size and somewhat lowered; this condition rendered the mouth slightly asymmetrical.

The skin of these two latter naevi was very thick and ridged; it contained numerous protuberances and very much resembled that of a pachyderm. The hairs implanted on this facial lesion were thick, hard and wiry, for the patient had for a long time habitually cut them every time they grew long.

There was no other naevus on any other part of the body.

There was nothing interesting to observe by anterior rhinoscopy or examination of the pharynx.

In presence of this affection, which constituted a repelling deformity (See Fig. 1, taken on January 26th) I proposed surgical intervention, after having advised the patient as to the multiplicity of the operations that would be necessary in order to obtain a cure. The proposed intervention was eagerly accepted.

On January 27th, 1920, I commenced the treatment of the cheek and lip, which was to consist of a series of excisions of portions of the involved area, taking great care not to stretch the skin beyond its natural resistance. With the exception of the rhinoplasty, where the patient was put under chloroform anaesthesia, I used a solution of novocaine-adrenaline as a local anaesthetic. By means of horizontal elliptic incisions on the cheek, vertical and oblique on the lip, I dissected off three flaps of skin in the middle part of the naevi. Dissection was practised with a great deal of care so as not to leave any hair follicles in the wound. The haemor-

rhage was insignificant. Sutures and dressings were of the ordinary kind. At the end of eight days the last stitches were taken out.

nutrition to the graft. It only remained then for me, to supply for a loss of tissue of about four centimetres long by two centimetres wide.



FIG. 1.

On the 10th of February, I repeated the operation at the same places. The aspect of the patient had already improved, as may be seen from Fig. 2, taken on March 18th.

After the intervention on the lip, on the 20th of March I removed at the same sitting all that part of the naevus which was situated in the outer region of the cheek, representing an ellipse with a long vertical axis.

On April 10th and May 1st I continued the excisions, and the patient then went to stay with her family in the country for several months.

On her return, in October, she had the appearance seen in Fig. 3, taken on the 21st.

At that time the limit of the extension of the skin of the cheek was reached, and if I had continued the gradual reduction of the naevus I would surely have had eversion of the lower eyelid, and raising of the corresponding upper lip. Therefore I decided to resort to dermo-epidermic grafting.

On October 23rd, I removed the upper half of the naevus of the cheek, already very much diminished in volume, as far as the nasal groove. Great care was observed in taking away entirely the cicatricial tissue resulting from the previous operations, in order to allow the best possible



FIG. 2.



FIG. 3.

To effect this, I cut from the left arm a very thin dermo-epidermic graft about a fourth part larger than the flap of the cheek that had been removed. After having checked the haemor-

rhage, this graft was rapidly placed on the wound of the face and carefully sutured with silk by means of a fine conjunctival needle. With the object of protecting the graft against all traction when the dressings were renewed, I applied a layer of perforated gauze soaked in a preparation composed of paraffin, castor oil and Peruvian balsam. I immobilized the eyelids as much as possible by means of a compressive dressing.

Having next loosened the skin surrounding the brachial incision, I easily coapted the lips with silk-worm gut, and applied an ordinary dressing. Everything proceeded in a normal manner and I had the satisfaction of seeing that the graft, which adhered well to the subjacent tissues, was in an excellent state of vitality.

On December 4th, I again removed at the lip two fragments of skin which represented the extreme limit of my incision, without modifying the symmetry of the mouth by exaggerated traction.

On December 18th, judging that the time had arrived for removing all that remained of the naevus of the cheek and lip, I practised a Thiersch graft taken from the arm. I took great care in the restoration of the lip to preserve the normal anatomical design of the mucous membrane. This time I again applied a paraffin dressing and prescribed absolute rest so as to keep the mouth in as complete a condition of immobility as possible. The graft adhered well to the places where it had been applied, and I continued the dressings, taking all the necessary precautions to avoid infection by the nostrils. The cure gradually followed its course, and two months after the operation the two wounds were properly healed. The grafted skin, which was very solid, was level with the surrounding tissues, and no depression existed in the place where the naevi used to be. In correcting the depression of the upper lip on the right, my endeavour was to obtain perfect symmetry with the opposite side. The lower eyelid underwent no traction, and on the 20th of February, 1921, the patient had the appearance indicated in Fig. 4.*

It remained for me, in the last place, to remove the naevus from the nose. I then had recourse to the only procedure that could justifi-

ably be employed in a case like the present, namely the Italian method. On February 24th, the patient having been put under chloroform anaesthesia, I made a minute ablation of all the



FIG. 4.

affected integument on two-thirds of the upper part of the nose, commencing at the inter-superciliary region. A large pedunculated flap was next cut from opposite the right biceps, destined to fill up the nasal wound. The incision in the arm, susceptible of rejoining, was rapidly loosened and coapted with silk-worm gut. The head being already turned to the right, the brachial graft, which included a layer of adipose tissue of sufficient thickness to aid nutrition, was in its turn carefully sutured with silk to the denuded nasal region.

Two days before the operation, aided by my confrère, Dr. A. Saint-Pierre, I had prepared a plaster bandage to go around the chin and thoroughly immobilize the head, slightly inclined and directed to the right. A gutter, also made of plaster, had been prepared, extending from the wrist to the armpit. The application of this gutter, held the hand to the summit of the occiput, permitting me, when the flap was sutured and dressing terminated, to rapidly immobilize the arm in a perfect manner by means of several turns of plaster bandages holding the arm and head firmly together.

Everything went on normally during the

*At this time the patient, still under treatment, was presented to "La Société Médicale de Montréal" at a meeting on February 15th, 1921.

fifteen days following the operation, the patient supporting her bandage without complaint. The sutures at the inter-superciliary region and on the left side of the nose were gradually removed, and the brachial flap adapted itself thoroughly at the grafting place. Eighteen days after the operation, the graft had the appearance that can be observed from Fig. 5.



Fig. 5.

Finding the time had arrived for completing the operation, the next day, under a general anaesthetic, I cut the pedicle of the flap aided again this time by Dr. Saint-Pierre. I removed the plaster apparatus and made a careful dissection of the naevus of the lower third of the nose, particularly in the region of the nostrils. After having almost entirely denuded the graft of its adipose tissue, I sutured it very carefully to the lips of the wound, striving to preserve as much as possible the normal appearance of the tip of the nose. The sutures on the right had naturally been removed, and I proceeded to rectify on the two sides the line of coaptation of the brachial flap. Finally I applied a light compressive nasal dressing, and a dressing on the arm, after having diminished the size of the wound by appropriate sutures. This part of the graft adhered very well to the subjacent tissues, and the cure rapidly followed its course. Epidermization on the arm took place gradually.

In order to diminish the volume of the nose and hasten as much as possible the disappearance of the adipose tissue of the flap, at the end of March, I commenced to make compressive dressings with that very malleable English composition called "stent", the advantages of which I described recently in a work relating to a case of traumatic scoliosis of the nose treated by osteoclasis.

On April 28th, the patient returned to her family and remained there for a year. At that date, the arm was wholly epidermized and the nose was already thinner.

She returned on May 1st, 1922, in order to have her treatment completed. There still remained two small brownish spots that I had left in the groove between the nose and cheek. After excising them, on May 3rd, I immediately practised a Thiersch graft. This, like the preceding one, produced an excellent result. As the fatty tissue lining the flap was gradually reabsorbed under the influence of my compressive dressings, and as in consequence the tension of the skin was much less, I terminated, on June 5th, the series of my operations by removing from each side, in the old scar, two small fragments which had for effect a further diminishing of the volume of the nose. A month later the patient was thoroughly cured and able to return home definitely. At that time the scars on the nose, cheek and lip were scarcely apparent, and there no longer remained any spots of naevus. The flap was slightly paler than the surrounding skin; however, experience has demonstrated that the difference of colour becomes considerably less with the passing of time. The nose somewhat aquiline and very regular in form, is now very much smaller than it was before the operation. There is no eversion of the lower eyelids, nor any displacement of the inner canthi, and the mouth is absolutely symmetrical. When the patient departed, she had the appearance represented by Figs. 6 and 7, taken on July 6th.

If now I make a rapid survey of the different methods of operation used in removing a naevus from the face, I come to the conclusion that before proceeding to the transplantation of a flap, it is first to be recommended that the lesion be reduced to the utmost possible extent by repeated excisions of the cutaneous areas. When the power of expansion of the skin has reached

its extreme limit without producing traction of the eyelids, eyebrows, the alae of the nose and the lobes of the ears, we may then think of grafting. The advantage which the dermo-epidermic grafting presents over the Thiersch grafting is that in the first case the transplanted tissues remain much more supple than in the

second. However, the operator must make his choice according to each particular case.

Certain authors seem to confound the Thiersch grafting with the dermo-epidermic grafting which is also called the total cutaneous grafting. In reality there exists between the two a fairly considerable difference, since, in the first variety, one removes only the epidermis and a very small part of the dermis, whilst in the second case one removes the whole thickness of the skin right to the subjacent tissue. On the contrary, the massive cutaneous graftings, which are now hardly ever employed, comprise not only the skin but also a certain quantity of adipose substance.

As experience has proved that the dermo-epidermic grafting retracts with time, I am of the opinion that it is better to cut one third or one fourth larger than the loss of substance that has to be replaced, especially when it has to be applied to the neighbourhood of the eyelids and the orifices of the face, contrary to that which Dubreuilh recommends of taking off a smaller flap than the wound to be repaired. In fact, there will always be time later on, if it is found that this graft is slightly too large, to diminish its size, and it is much more practical than to add to it, if it is considered too small. I would naturally say the same thing for that which corresponds to the rhinoplasty.

In the case of our patient it never was a question of having recourse to Indian grafting, for, before everything, it is necessary to avoid making facial scars on healthy tissue, and even with the procedure of Snyder of Chicago, which consists in taking from the neck a pedunculated flap, we would with great difficulty have succeeded in making good all the loss of substance resulting from the excision of the naevus of the cheek and lip.

As to the rhinoplasty, we had equally to save the skin of the face, and the Italian method was the only one that could be employed in the present case.

Electrical treatment, under any form whatever, was not to be recommended.

Radium might probably have destroyed the naevus of the cheek and lip; however, in presence of the lesion of the nose, its action would have been ineffective, seeing the very considerable hypertrophy of that appendage. Moreover,



FIG. 6.



FIG. 7.

it is permitted us to have doubts, since Morestin reported to "La Société de Chirurgie de Paris", at its meeting, on June 16th, 1915, his observations of a case of a man suffering from a vast pigmented hairy and warty naevus of the face, which he cured surgically. His patient, he declared: "Had been treated for a long time by sparks of high frequency without any result. He had also been submitted to a prolonged treatment by radium without having obtained the least amelioration."

Therefore, the problematic effect of a cure of pigmented naevi of the face by physical agents being granted, I may conclude by stating that I believe that the most rational treatment of this deformity consists first of all in making repeated extirpations of fragments of the skin.

When the integuments have attained the maximum of their extension without producing traction on the surrounding parts, it is necessary then to have recourse to grafting by giving preference to the dermo-epidermic graft. There is no need for me to insist on saying that the operation should be made in a perfectly aseptic manner, and that the wound in the face ought to be rendered bloodless before transplanting the flap.

The fact of suturing the latter diminishes the dangers of displacement, assists the coaptation, and facilitates success.

The paraffined dressings render great service, especially for a Thiersch graft.

And finally, the Italian method is the one

which procures the best results in the case of total rhinoplasty.

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Ovarian Therapy—Emil Novak, Baltimore, emphasizes the fact that, rational as ovarian therapy appears to be in some conditions, the results are rarely striking and often nil to the level-headed observer. It cannot be assumed that a commercial extract can replace the normal ovarian secretion in the patient's body, or, for that matter, that it originally contains any of the active hormones of the ovary. Here lies the crux of the whole problem, whose solution will depend in large measure on the work of the biochemist. Until this day, the physician who uses ovarian therapy should keep his feet on the ground and not let himself be carried

away by the exaggerated claims of those who have something to sell or the ill advised and premature reports of honest but deluded professional colleagues who have not yet learned the dangers lurking in the "post hoc propter hoc" method of reasoning. As I once heard a wise man say, "Ought we to assume, if the administration of caseara relieves constipation, that the constipated individual had been a victim of hypocascarism?" There can be little question as to the future importance of ovarian therapy—as regards its present importance there is considerable room for discussion.—*Jour. Am. Med. Ass.*, Dec. 20, 1924.

SURGICAL HEADACHE

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HEADACHE, like "liver trouble", "dyspepsia", etc., is often an indicator of trouble elsewhere. When due to causes curable only by surgical treatment it is, with few exceptions, due to (1) pressure, (2) inflammation, (3) the two combined. From an etiological standpoint the causes may be (a) within the cranium, (b) in the other parts of the head, and (c) in other parts of the body. In intracranial lesions headache is caused by pressure irritation or involvement of the nerves of the dura and arachnoid which are richly supplied with nerve filaments from the cranial nerves. This type of headache is usually severe, subject to great exacerbations, increased by movement, worry or excitement and is usually limited to a definite area of the head. Sometimes tenderness on pressure is felt over a tumour or abscess region. The pain is usually throbbing in character and is aggravated by any alimentary disturbance. The patient usually complains of a sensation of constriction in some part of the head or of a feeling that his head is going to burst.

The most important of the associated signs and symptoms is optic neuritis which is always associated with increased intracranial pressure. Optic neuritis ultimately means blindness. It is one of the earliest associated symptoms to appear and is one which demands immediate attention. Ophthalmoscopic examination of the fundus of the eye should never be neglected in cases of severe continued headache. Even a pronounced optic neuritis with its very defective vision will frequently clear up to a wonderful extent after a proper decompression operation. Tumours at the base of the brain in the middle fossa, tumours growing from the base of the skull in the neighbourhood of the foramen ovale and foramen rotundum, as well as tumours of the cranial nerves themselves, are among the causes of trigeminal neuralgias, as also are gummatous meningitis and periostitis. In cases

therefore of continuous trigeminal neuralgia, optic neuritis should be looked for, headache and vomiting inquired after, and the use of the ophthalmoscope never neglected. Headache from these causes often persists, or becomes worse at night, preventing sleep or waking the patient, whereas that due to toxic or functional causes is relieved by rest in a horizontal position. Suspicion of the organic nature of a headache should therefore attend a case in which pain in the head disturbs the patient's sleep at night. Headache on arising in the morning may be due to anaemia caused by too many pillows or sleeping with the head under the bedclothes, by enlarged turbinates. Evening headache may be due to eyestrain or visual defect, and is then associated with a burning, prickling sensation, or watering of the eyes.

Lesions of the skull, of the special organs of the head, and of other parts of the body are situated in regions better supplied with sensory nerves. As shown in Fig. 1 the fifth cranial

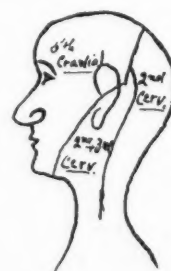


FIG. 1.

nerve supplies the face, nose, nasopharynx, eye and jaws with their accessory sinuses, turbinates, etc. The region of the mastoid and ear is supplied by branches from the second and third cervical nerves. The occipital part of the head up to the vertex by the second cervical nerve. The posterior part of the tongue and pharynx by the ninth cranial or glossopharyngeal nerve. Headache from lesions in these regions is a re-

ferred pain along branches of the above mentioned nerves, and varies from twinges of neuralgia to a heavy bursting ache with vomiting and prostration. But the pain does not usually correspond to the anatomical distribution of these nerves. French writes, "A referred visceral pain usually brings with it superficial tenderness, and both the pain and tenderness are found over segmental areas, areas that do not correspond to the distribution of the peripheral nerves, but follow a central distribution. Sometimes they do follow peripheral nerve distribution." This principle so thoroughly recognized in abdominal and spinal surgery should also receive its proper recognition in surgery of the head; *i.e.*, from the surgeon's standpoint, superficial tenderness, neuralgia, and segmental headaches may be regarded as variations of the same symptom complex.

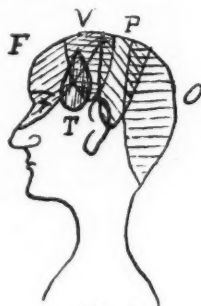


FIG. 2.

These segmental areas, represented in Fig. 2 which are the usual distribution of headaches, are *frontal*, *temporal*, *vertical*, *parietal* and *occipital*. It will be noted that they overlap more or less.

SEGMENTAL LOCATION OF HEADACHES

Lesions causing frontal headache are:

1. Diseases of the anterior ethmoidal cells inducing dull pain between the eyes.
2. Disease of maxillary antrum inducing pain over antrum and along course of the supraorbital and infra-orbital nerves.
3. Disease of frontal sinus causing pain along the supraorbital nerve or at the outer angle of the eyebrow.
4. Disease of teeth, *e.g.*, abscess at the roots of the upper molars, or wisdom teeth growing in under dental plates.
5. Disease of eye or orbit, *e.g.*, astigmatism, hypermetropia, iritis, glaucoma, may cause headache spreading from the front of the forehead to the vertex and temporal regions. As in these conditions there may be no pain in the eye itself; frontal and temporal headache may be of great diagnostic importance in drawing attention to the ocular disease.
6. Abscess, tumour, or cyst in the frontal lobe of brain.

Lesions causing temporal headache are:

1. Posterior ethmoid sinus disease.
2. Sphenoid sinus disease.
3. Enlarged turbinates.
4. Deviated septum.
5. Teeth—disease of the upper and lower second bicuspids.
6. Eye—as above.
7. The temporal region is segmentally connected with the seventh dorsal nerve which supplies the epigastric area, therefore lesions which cause gastric disturbances, bring about temporal headache, *e.g.*, the "bilious headache", of constipation, appendicitis, cholecystitis, etc.

in the temple and over the vertex sometimes back in the regions of the mastoid and occiput.

Lesions causing vertical headache:

1. Posterior ethmoid sinus disease.
2. Sphenoidal sinus disease.
3. Enlarged turbinates.
4. Deviated septum.
5. Middle ear disease may be referred to the vertex and temporal regions.
6. Depressed fracture.
7. Tumour, cyst, or abscess at the base of the brain, pituitary disease, aneurism.

Lesions causing parietal headache:

1. Inner ear disease.
2. Middle ear disease.
3. Mastoiditis.
4. Abscess in the temporal lobe, lateral sinus thrombosis, tumour of auditory nerve.

these conditions may also cause the whole side of the head to ache.

Lesions causing occipital headache:

1. Sphenoid sinus disease—the usual situation for this lesion.
2. Posterior ethmoidal sinus disease.
3. Enlarged turbinates.
4. Deviated septum.
5. Disease of the dorsum of the tongue.
6. Myalgia in the muscles of the nape of the neck—the so-called "indurative headache".
7. Caries or tumour of the upper cervical vertebrae.
8. Cerebellar tumour or abscess.

CHARACTERS OF HEADACHE

These are the usual though not invariable situations of headaches arising from the above lesions. It may be unilateral in tumour, abscess, middle ear diseases, etc. It may be universal in any of the above mentioned lesions. Headache from a certain lesion always occurs in the same situation in the patient. Intervals of freedom are frequent, even for weeks at a time. Sometimes it occurs at a certain time of the day or night. When due to sinus disease or enlarged turbinates it becomes very much worse with acute nasal catarrh. It is frequently aggravated when the patient lies down, when straining at stool, by constipation, and by jarring movements. If inhalation of steam or application of adrenalin and cocaine to the nose relieves the headache it is a good indication of nasal or sinus disease.

As illustrative cases we present the following:

Case 1.—Headache of the vertex due to a cyst of the pituitary body.—Female, age twenty-nine, school teacher, always been healthy. Three years ago ceased menstruating. Soon after this began to have headaches in the vertex, which steadily increased in frequency and intensity until they became practically constant and unbearable, associated with frequent vomiting, aggravated by movement, excitement, or worry and worse at night. Admitted August 4, 1923. Examination, pulse 68, temperature 98.4° F., respiration 18, blood pressure $\frac{120}{75}$

Kneejerks exaggerated. Other reflexes normal, circulatory, respiratory, digestive and renal symptoms normal, except for moderate frequency of micturition. Body well nourished. Skin soft and normal. Hands somewhat spade-like, fingers wedge-shaped, tapering from base to tip. Comparison of face with a series of photographs taken earlier in life showed no marked change. Gait unsteady; would fall to either side if unsupported. Had incoördination of the muscles of the eye. Beginning with divergent squint, by a series of ocular movements she could focus on the desired object. Vision failing steadily, especially in the right eye. Ophthalmoscopic examination, showed marked optic atrophy especially in upper inner quadrants. Retinal veins dilated to about five times normal size.



FIG. 3.

Nose and pharynx normal except for considerable congestion. Wassermann negative. X-ray showed a tumour about the size of a hen's egg over the sella turcica, also showed coronal suture gaping to the extent of an eighth inch at the vertex. On August 7, 1923, Elsberg's modification of Krause's operation through the right anterior fossa was performed. The osteoplastic flap of the forehead being turned in and the roof of the orbit and optic foramen cut away with

rongeurs. The intracranial pressure was excessive and it was with great difficulty that the cyst was brought to view and ruptured. About two or three ounces of pale straw-coloured fluid escaped. Wound was closed without drainage. Patient made an uneventful recovery. Discharged September 3, 1923, free from headache, able to walk perfectly, no frequency of micturition. Sight good in both eyes; she has a downward displacement of the right eye one-quarter inch. This has been corrected by prism glasses. Seen August, 1924, patient still perfectly well. An excellent result considering the extreme intracranial pressure. This case is remarkable for its rapidity of onset and its clear-cut symptoms, viz., sexual change, headache situated in the vertex, bitemporal hemianopsia due to optic atrophy, and the x-ray picture of tumour in the sella turcica. Also for the absence of slowing of the pulse rate in spite of the extreme intracranial pressure.

Case 2.—Frontal and vertical headache due to enlarged turbinates and septum.—Male, age forty-two, clergyman. Has always been subject to headaches. Three years ago they became constant and so severe as to incapacitate him from work. After receiving osteopathic and homeopathic treatment for a year, he was sent to a hospital for the insane, where he remained for two years. Coming to Yarmouth last fall he was admitted to the infirmary. In conversation, the patient



FIG. 4.

was perfectly rational, memory perfect, extremely restless and sleepless; always rubbing the vertex of head, bridge of nose and point of chin. Had rubbed the skin off at these points, had torn out most of his upper teeth with his fingers and metal objects; constantly complained of unbearable headache in the forehead and vertex, of a bursting character. Examination showed everything normal, except the nose which was completely blocked on both sides by en-

larged turbinates and thickened septum. X-ray showed bony enlargement of these parts. At operation all the turbinates were removed and a thorough submucous resection of the septum done with almost immediate relief of the headache.

Case 3.—Parietal headache due to abscess in floor of middle fossa.—Male, age fifty-three, about two years ago while living in the United States he had a simple mastoid operation on the left side. Two weeks later the wound was reopened and the bone again curetted. About three months later he began to have severe left parietal headaches which gradually became constant in character and associated with dizziness so that he felt he could not even lie in bed without falling out. Examination showed everything normal except an area of tenderness over the upper portion of the mastoid region. Fistula reaction absent. Six months after the former operation we did a radical mastoid which did not relieve the symptoms. Two weeks later we again operated cutting away the outer table of the skull above the mastoid area. A small abscess was discovered between the inner and outer tables of the skull and cleaned out, with permanent relief from the symptoms.

Case 4.—Occipital headache due to spinal caries.—Male, age three years. Began complaining of occipital headache about six months ago. This continued intermittently for two or three weeks until the child came under medical care. On being put to bed for a week the pain disappeared and remained absent for three months. Then it began to recur, especially when the child was playing actively, and finally on any movement of the head. X-ray showed caries of the second and third cervical vertebrae.

Case 5.—Diffuse headache due to depressed fracture over the left Rolandic area.—Male, age twenty, well until three years ago, when he fell down an elevator shaft, fracturing his arm and remaining unconscious for eight days. Did not seem to recover fully from the accident and came to us complaining of generalized headache, unsteadiness of gait and peculiar vision—"the ground seemed to be covered with snow." His family complained that he was grouchy. Examination showed pupils normal, reacting to light and accommodation. Discs showed optic neuritis on both sides, more marked on left. Vision right $\frac{20}{40}$, left $\frac{20}{100}$. Knee jerks absent

on the left side, reduced on the right, motor control of both legs poor, especially right. Romberg's sign present in a marked degree. Sensation diminished in the right leg. Wassermann tests negative for blood and spinal fluid, spinal fluid clear and under considerable pressure. Its removal relieved the symptoms for a time. Other systems normal. X-ray showed depressed inner table of vault on left side. At operation a two inch area of the depressed part of the skull was removed. Two weeks later the patient could walk as well as anyone, headache gone, and vision, to him, normal, right $\frac{20}{30}$, left $\frac{20}{80}$.

These cases taken from our records of the past two years will perhaps help to indicate the importance of headache from the standpoint of surgical treatment and the need of greater emphasis being laid upon the differential diagnosis of this most common symptom.

Roentgenotherapy in Sarcoma of the Orbit—

A series of twenty-six cases seen by G. E. Pfahler, Philadelphia, during the last twenty years, is the basis of this report. He has treated nine cases of recurrent sarcoma of the orbit with the Roentgen-ray. Six of the patients have died. All but one showed a definite improvement, lasting from two to fifteen months. One patient with osteosarcoma is apparently free from disease at the end of three and one-half years. One patient with sarcoma of the eyelid was well nine years, and is probably still well. One patient with melanotic sarcoma of the conjunctiva improved for a year, but died of metastasis. The poor results in the recurrent cases, as compared with the good results in the primary cases, Pfahler says would argue against operation and in favour of early and thorough, but skilful, irradiation of the primary tumour. This is what one would expect when it is realized that cutting into sarcoma favours implantation and dissemination. Most of these patients died of cerebral involvement. If, for any reason, a patient is

operated on, there should be prompt postoperative Roentgen-ray treatment, or probably, better, implantation of a radium capsule in the orbit following evisceration. In three primary cases of intra-ocular sarcoma, the disease has been arrested from three months to eighteen years. Pfahler has treated fourteen cases of primary retrobulbar sarcoma, with failure in two cases and with freedom from symptoms in nine cases at the end of from one to nine years, with three additional cases, presenting extension of the disease to the frontal bone, which are improving under treatment at the present time. Clinically, under treatment, the patients usually show improvement within a month after the first course of treatment. There is usually reduction in the size of the tumour, and some recession of the eyeball into the orbit, and the patients suffer less pain. The earlier the patient is treated the more prompt and more satisfactory have been results. In all of the early cases, the tumour tissue disappeared completely.—*Jour. Am. Med. Ass.*, Jan. 10, 1925.

THE NEWER METHODS OF TREATING SKIN DISEASES*

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IN recent years the treatment of diseases of the skin has undergone radical changes. The use of ointments, lotions, and plasters has largely given way to the employment of physical methods grouped under the common term, physical therapy. These consist of (a) high frequency currents, principally in the form of surgical diathermy or electro-coagulation; (b) radiant light or photo therapy; (c) ultra violet rays; (d) x-rays; (e) radium.

These various therapeutic measures all belong in the class of phenomena known as electromagnetic waves. They all have similar physical properties. All travel at the rate of light and differ only in the length of the waves and the frequency of their occurrence.

The application of these physical phenomena in the treatment of diseases of the skin is the subject of this paper. It is not my purpose to go into a detailed description of each of these physical therapy procedures, as to their physical qualities, the method of their production, or the technique of their application. I propose rather to draw conclusions from my own experience in their use and state my opinion as to when and in what combinations they should be employed.

It is now generally admitted that the x-ray is the most successful single remedy for skin diseases. Its only competitors are radium and the ultra violet ray. Radium is better suited to small circumscribed lesions. The x-ray is preferred where larger areas are to be covered. The two should often be combined. In many conditions, such as the large class of skin malignancies, they should be used in conjunction with surgery or surgical diathermy (electro-coagulation).

Very recently the ultra violet ray is assuming a position of importance. It can be used to treat much larger surfaces than can the x-ray, and in many skin diseases, such as generalized

eczemas, it will clear up the lesion equally well. In many conditions it should be used as a supplementary treatment to x-ray or radium, or as a corrective. The ultra violet ray, being essentially a tissue stimulant, while x-ray and radium are essentially depressants, the two may form complementary treatments. For example, in actinomycosis the x-ray or radium is used to inhibit the ray fungus and absorb the inflammatory products, while the ultra violet ray is used to promote the formation of healthy granulation tissue.

In many conditions, as in generalized eczema, the ultra violet ray should be used for its value as a metabolic stimulant. Thus the local skin condition is benefited through the improvement in general metabolism.

As a complementary treatment to the local action of x-ray or radium, the water-cooled ultra violet lamp is used; while as a metabolic stimulant, the air-cooled lamp is employed. The use of the air-cooled lamp is often best preceded by some form of phototherapy, as, radiant electric light, to dilate the skin capillaries and thus facilitate the absorption of the chemical products liberated by the ultra violet ray.

A detailed discussion of our experience in treating the various skin conditions will illustrate and enforce the general conclusions just stated.

I. SKIN MALIGNANCIES. These are of two types, the epithelioma proper, or the squamous cell type, and the rodent ulcer, or the basal cell type.

(a) *Epithelioma.*—The characteristic of the epithelioma is its high grade malignancy through its great liability to produce metastasis. In its treatment, x-ray or radium should always be employed. While many advocate their use alone, we believe that in true epithelioma they should always be combined with surgical excision or electro-coagulation. There should be a preoperative radiation given a sufficient time before operation to allow reaction to occur, as other-

*Read at a meeting of Brandon and District Medical Association.

wise the adjacent skin area may slough. This should be followed by surgical excision or electro-coagulation; curettement is never permissible. Immediately following the surgical excision or electro-coagulation, x-ray or radium should be employed over the excised or coagulated area, the adjacent skin, and the tributary gland areas. This treatment should be repeated in two weeks, again in a month, and then at successive intervals of one month, three months, six months, a year. Only after following up thus for two or three years can you hope to effect a cure.

Of twenty-two cases of skin epithelioma which we treated by the x-ray, fourteen were of the lower lip (all in men), four of the face, three of the hand, and one of the external genitals. Of the fourteen epitheliomata of the lip, seven had surgical excision, some preceded, and all followed, by the x-ray. All are at this date free from symptoms, many dating back six and seven years. Seven were treated with the x-ray only. Of these, one did not yield to the x-ray and was treated successfully with radium. One yielded good results to the treatment of the lip by the x-ray but later developed metastasis in the submaxillary gland, which resisted all treatment by surgery and x-ray and ended in death.

Of the three epitheliomata of the hand, only one was surgically excised and followed by x-ray with good results. The other two were treated by the x-ray alone. One resisted treatment and was later excised with no recurrence. The other healed but at a later date recurred higher in the arm and on the axilla. The patient is now dying of cancer toxæmia. The four face epitheliomata were all excised surgically in conjunction with the x-ray. All recovered and are still alive and well.

The average number of x-ray treatments of all epitheliomata was seven. All primary lesions were treated without filter, and all glandular areas and adjacent skin areas with filter.

(b) *Rodent ulcer*.—The characteristic of the basal cell type of skin cancer—rodent ulcer—is their superficiality and their low grade type of malignancy. They are not prone to metastasis. They may be excised or curetted or electro-coagulated, but there is usually no difficulty in clearing them up with the x-ray or radium alone. In many situations, such as the eye canthus, surgery is not practicable.

We report twenty-five cases of rodent ulcer treated by the x-rays. Of these, only four were subjected to surgery. The rest were treated by the x-ray alone. Of the twenty-five cases, twenty-two are healed. One is still under treatment with x-ray and the ultra violet ray for an extensive rodent ulcer of the entire frontal sinus area, (one eye has been removed). The lesion is not progressing, and in response to the ultra violet ray the exposed frontal sinuses are granulating up and becoming covered with epithelium. One case, similar to the one just described, died from cerebral haemorrhage. One case resisted all treatment and succumbed. This was a large rapidly spreading rodent ulcer behind the ear.

The average number of treatments was nine. All were unfiltered.

These rodent ulcers were all situated in the region of the face. Seven occurred on the nose and five on the eyelids. Two invaded the orbit. Two were on the forehead, five on the cheek, two on the neck and two on the ear.

(c) *Sarcoma*.—Most authorities assert that sarcoma, especially of the giant cell type, responds readily to x-ray treatment. This, however, has not been our experience. In most of the sarcomas we have treated, the skin lesion was an extension from a sloughing sarcoma in the deeper tissues. Two such cases proved fatal despite surgery and the use of the x-rays. One case was a malignant degeneration of an extensive lymphangioma, and terminated fatally. One case, taken in the early stages, was cured, by the x-ray.

II. *PRECANCEROUS ULCERATIONS, KERATOSES, ETC.* There is a large class of skin conditions which may be regarded as precancerous. These consist of indolent ulcers or eczematous patches, chiefly occurring at the mucocutaneous junction of the lower lip; patches of senile keratoses about the nose and face; and the allied small heaped up papillary areas, or painful minute chronic recurring ulcerations, on the side or tip of the tongue. These conditions, if untreated, or wrongly treated, so as to favour their tendency to chronicity, will almost invariably become malignant. Under proper treatment with the x-ray or radium, they will approximate one hundred per cent of cures. If they should fail to clear up promptly under radium or x-ray treatment, they should be excised or electro-

coagulated. We prefer excision and pathological examination of the tissue. If this shows malignancy or any tendency to malignancy, the usual routine for skin epitheliomata is adopted.

We regard the healing obtained in these precancerous cases as among the most brilliant and satisfactory results of the x-ray treatment. In a series of thirty-three cases of this type treated by the x-ray alone, only one failed to yield promptly and was surgically excised.

(a) *Lip ulcers*.—Of eighteen cases of chronic premalignant ulceration of the lower lip, seventeen were cured by x-ray, and one was excised, with good results. As showing their potential malignancy, it is noted that two of the ulcers recurred, but yielded to a second series of x-ray treatments. Only two of this type of ulcer occurred in the upper lip. The lower lip ulcers all occurred in men, while in one of the two upper lip ulcers the patient was a woman. The average number of treatments was four. Many cleared up in two treatments. One case of three years' standing yielded to four treatments.

(b) *Tongue ulcers*.—There were four cases of painful recurring ulcerations or papillae proliferations of the side or tip of the tongue. Strikingly these all occurred in women. The treatment invariably gave prompt relief from pain but for permanent cure a long series of x-ray treatments was required. They showed a remarkable tendency to recur, one lesion returning four times at intervals of six months to three years. On the resistant cases, the ultra violet rays were tried, but not with as good results as the x-ray.

(c) The *senile keratoses* occur chiefly about the face, and mostly in men who have passed the prime of life. Some responded to as few as two treatments, while others received as high as fifteen. Of nine cases treated, eight cleared up, and one was not followed up after two treatments were given without improvement.

(d) *Warts* respond readily to the use of the x-rays. We have, however, not had much experience with the x-ray in their treatment, preferring to use electro-coagulation, especially when a number are to be treated.

III. NON-MALIGNANT SKIN TUMOURS. *Keloids*.—Non-malignant skin tumours belong, in their treatment, almost exclusively in the field of the surgeon. There is, however, one type of non-

malignant skin growth, which occurs in the scar tissue of wounds and operation incisions, which no amount of operating can cure. Any excision of a keloid usually results in a larger keloid than the one removed. The vast majority can be successfully treated by x-ray or radium. Very large keloids should first be excised and the line of incision then treated by x-ray or radium. We have been successful in curing what few keloids have been submitted for x-ray treatment.

IV. TUBERCULOSIS OF THE SKIN. (a) *Lupus vulgaris*, which is a true skin tuberculosis, is a notoriously difficult condition to treat. Fortunately it is rare. We have had occasion to treat but one case, which showed marked improvement after six exposures when the treatments were discontinued.

(b) *Tuberculous ulceration* of the skin by extension from some underlying tuberculous process should be treated locally by the x-ray and the ultra violet ray. Stimulation of the general metabolism by the air-cooled ultra violet lamp should also be employed. This latter should be used in every case of tuberculosis, wherever the focus may be located. We have had several cases showing marked improvement under the combined therapy.

(c) *Lupus erythematosus*, which is not a true skin tuberculosis, but a toxic result of absorption from a tuberculous lesion elsewhere in the body, may be improved greatly by the application of x-ray or radium, but yields best results under ultra violet therapy. There is a marked tendency to recur, whatever form of treatment is used.

The following case illustrates the difficulties of this type of condition. Patient has marked patches of lupus erythematosus on the nose and the right cheek. Twenty-two x-ray treatments were given with temporary improvement after each treatment but followed by a prompt recurrence. A tuberculin test revealed the presence of some active tuberculous process somewhere in the body. The patient was placed upon an anti-tuberculosis régime, including tuberculin, ultra violet rays, the water-cooled lamp locally and the air-cooled generally. The improvement was very marked. The patient is still under treatment.

V. SKIN DISEASES OF ANAPHYLACTIC TYPE. These are the result of the irritation of poisons, the source of which is usually some focus of infection. They form probably the largest class

of skin diseases. Included in this class are lupus erythematosus (just discussed), the eczemas, the urticarias, the herpetiform eruptions, and probably psoriasis and the lichens, and the various pruritus conditions where no visible skin lesion exists.

(a) The *eczemas*.—In the local treatment of the chronic eczemas there is nothing to compare with the x-ray. After one treatment eczematous patches of years standing will often melt away like snow before a summer sun. One patient had an intractable irritable patch of six years duration. One treatment with the x-ray gave him immediate relief with complete disappearance of the patch. Of course, the lesions may recur, as any lesion resulting from toxin absorbed from a focus of infection will return, unless that focus is eradicated. Therefore, *pari passu*, with the local treatment, must go the search for and eradication of this underlying cause.

Even the acute eczemas will yield surprising results, but they must be treated with circumspection lest an already acutely inflamed skin received increased irritation. Especially are good results obtainable if the acute eczema is secondarily infected, with the formation of sloughing crust. In this condition, and whenever treatment must be prolonged, the x-ray should be supplemented and often replaced by the ultra violet ray. In the latter form of treatment there is the advantage of being able to use almost any type of lotion, many of which are contraindicated while x-ray is being used.

The ultra violet rays will give almost equally as good results as the x-ray in any type of eczema, but the results are not so spectacular, and require longer to produce. In all generalized eczemas, we use the x-ray over the most troublesome local lesions, and the ultra violet rays over the whole body.

Thirty-six cases of eczema, localized and general, are reported in this series. All but three were completely relieved and the lesions cleared as the result of x-ray treatment. Many, of course, recurred and required subsequent treatments.

The average number of x-ray treatments given was five, the number required varying in individual cases from one to fifteen.

(b) *Psoriasis*.—All who have had much experience in treating psoriasis know what an in-

tractable condition it is to deal with. Almost any form of treatment, alkaline baths, chrysarobin, or the x-ray, will temporarily clear up the patches. But the period of freedom from recurrence is usually short, and does not vary much, no matter what the treatment.

In one case of Psoriasis treated by the x-ray, the lesion cleared and remained clear for four years, when it recurred and was again removed by x-ray. It still remains clear. This good result, however, we have not succeeded in duplicating. In another case sixteen treatments were given. After each treatment the lesion cleared, but promptly recurred in about a month. In another case the lesions cleared promptly, and recurred promptly about six weeks later. However, at each succeeding treatment it was necessary to use harder rays than at the preceding one in order to effect a clearance of the patches. In one case the patches were not affected by the x-ray. In one case where the lesions were not responding to the x-ray and where, owing to the lesion being in the scalp, it was not wise to continue the x-ray, the ultra violet ray was used. Nine treatments were given. The scalp cleared and remains clear after three or four months have elapsed. This patient is getting sodium cacodylate intravenously.

While we are not very enthusiastic over physical therapy results in psoriasis, perhaps we may be as enthusiastic as the advocates of any other form of treatment.

(c) *Lichen planus*.—This is a somewhat rare condition and one on which it is difficult to get results. We have had good results with the x-ray in several cases, and in others, radium effected a cure when the x-ray had failed.

(d) *Acute dermatitis of erythematosis* and herpetiform type yields readily to the ultra violet ray in stimulating doses.

(e) *Generalized pruritus* usually belongs to the anaphylactic group of skin disturbances. It may be regarded as the effect of absorbed toxins on the terminal nerve endings in the skin. The search for the focus of infection may prove very elusive. But we have found in the x-ray and the ultra violet ray, anti-pruritic treatments of the most prompt and effective type. The ultra violet ray is usually the most easily applied since the condition is so wide-spread.

Localized pruritus areas, especially pruritus about the vulval and anal regions, respond

readily to x-ray and the ultra violet ray. There will be almost immediate relief from these most troublesome and intractable irritations.

In all these pruritus conditions, as in all the other skin lesions resulting from a focal infection, the focus must be sought and removed if recurrence of the skin irritation is to be prevented.

VI. SKIN DISEASES THE RESULT OF PARASITIC OR BACTERIAL ACTION. Under this heading are included such conditions as impetigo, furunculosis, acne, scabies, the tineae, carbuncle, and actinomycosis.

Most of these conditions respond well to the x-ray. For direct bactericidal action the ultra violet ray is invaluable, being the most effectual and quickest surface bactericide known.

(a) *Impetigo, furunculosis, folliculitis and carbuncle* respond well to x-ray. If taken in the early stages they may often be aborted. In the later stages the ultra violet ray is invaluable for its bactericidal effect, and for its regenerative qualities.

(b) *Scabies*.—It is not necessary to use physical methods of treatment in scabies, unless there is marked secondary infection. When there is such a complication the ultra violet ray has proven a speedy and effective way of treating the condition, which generally involves the whole body.

(c) *Acne*, especially when of the chronic indurated type, yields readily to the x-ray. This method should, however, only be used when other measures fail. On account of the widespread character of the lesions the x-ray is better than radium. If there is much secondary infection, the ultra violet ray should be added to the treatment. Seventy per cent of the cases of chronic indurated acne treated by us have been cured.

(d) *The tineae*.—Tinea tonsurans and tinea capitis respond more readily to x-ray than to any other treatment. An epilation dose must be given, the infection being removed with the falling hairs. The ultra violet ray also gives good results, especially if combined with anti-parasitic measures.

(e) *Actinomycosis* is in our experience, a rather frequent disease. When restricted to the jaws or neck, it should be widely excised, swabbed with Churchill's iodine, pounded heavily with unfiltered x-ray or radium, and subsequent-

ly the ultra violet ray to promote granulation in the destroyed area. Potassium iodide should be given internally. Of six severe cases treated by this method of régime, five have resulted in complete cure, while a sixth was showing progress but did not complete the treatment. In one case where an ulcer, with a base as hard as sole leather and forming the floor of the mouth so that it could not be excised, persisted for a year, we were able by the ultra violet ray to promote granulation and epithelial growth and close it after forty-five treatments. Pulmonary and appendiceal actinomycosis, which cannot be widely excised, is usually fatal. Fortunately it is rare.

VII. SKIN DISEASES RESULTING FROM CIRCULATORY DEFECTS. Among these are the various forms of naevi, viz., the haemangiomas and the lymphangiomas, chilblains, hyperhydrosis, and senile gangrene resulting from endarteritis obliterans. These are all treated very successfully with the ultra violet ray, radium, or the x-ray.

(a) *Naevi*.—In the vascular naevi many prefer radium. We have used the x-ray, but prefer the ultra violet ray, since we think it gives better results and is safer to use over a long period. We believe any one of these methods is superior to electrolysis or the use of carbon-dioxide snow. To get results in the more extensive naevi you must obtain your patients' consent to years of treatment. A large port wine mark should be heavily blistered over a small area, and no new areas treated until regeneration is completed, which will be two or three months. We have treated a number of small naevi by both x-ray and ultra violet ray. In seven cases a complete cure was effected by x-ray, while in four cases there was much reduction in the size and colour of the naevus. Two of these latter were switched to ultra violet ray with more rapid progress.

(b) *Senile gangrene* resulting from endarteritis obliterans. In this condition we have had a number of cases which have given brilliant results under ultra violet therapy. Under the stimulating effect of the ultra violet ray, the pain was promptly relieved and circulation was gradually improved so that the gangrenous ulcer filled with healthy granulations and became covered with epithelium.

(c) *Hyperhydrosis* an excessive secretion of the sweat glands—usually occurring in the axil-

lae, yields to hard x-rays well filtered and long continued. The dangers of prolonged x-ray treatment and the epilation of the axillary area are complications which must be borne in mind.

(d) *Chilblains*.—This condition being an erythema, occurring in those with poor peripheral circulation and disturbed vaso-motor tone yields well to ultra violet ray and its stimulating effect upon the peripheral circulation.

(e) *Ulcers*.—Ulcers, of whatever type, whether due to traumatism or the result of the activity of micro-organisms, are essentially the result of a circulatory defect. The treatment therefore must consist in stimulation of the local circulation. There is no single measure that thus stimulates the local circulation, that can be compared with the ultra violet ray. The water-

cooled lamp should be employed in every type of ulcer of the skin, no matter what the cause. Simple ulcers resulting from traumatism, varicose ulcers, tuberculous ulcers, specific ulcers, all should receive the benefit of ultra violet stimulation.

Summary

In conclusion it simply remains to be stated that the statistics given in this paper of healed skin lesions justifies us in the assertion made at the outset, viz., that physical therapy has supplanted largely all the other methods in the treatment of skin conditions. He who would be efficient in alleviating this class of disease must see that his patient secures the benefit of these modern methods of treatment.

THE NATURE AND CLASSIFICATION OF THE LEUKAEMIAS*

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UNFORTUNATELY the fundamental knowledge is lacking to make pathology an exact science as is mathematics or physics. Our conceptions must arise from theories built up from objective observations, not from a logical sequence of cause and effect. And so it happens that we are obliged not merely to push back the boundaries of our knowledge as with a pure science, but we must alter and rearrange the concepts which we already have. Theories must be torn down and discarded, and new ones formed. It frequently happens, however, that this is difficult. Terms and expressions coined for the concepts of yesterday are now shown to be false, and consequently become misnomers. Still if they have come into general use they cannot be easily dislodged, so a discrepancy comes to exist between their original and present meaning. This leads to confusion. An example of such is the present often employed terms, "parenchymatous" and "interstitial" inflammation; some authorities have gone so far as to suggest dropping the term inflammation alto-

gether and starting with a clean slate, if we ever hope to put the subject on a rational scientific basis. Another example is the subject of this paper,—namely the leukaemias.

To understand clearly the expression and realize how we have departed from its original meaning, it may be wise to trace the history of this interesting pathological phenomenon. It was none other than Virchow, in 1845, who first identified leukaemia as a specific disease of the blood forming organs, and separated it from pyaemia. He believed, however, that the circulating leucocytes were the same as those found in pyaemia, and it was merely the persistence of the leucocyte increase which was the pathognomonic factor. In 1853 he further differentiated two types: a lienal, or splenic, with large blood corpuscles, now generally termed myelogenous, and a lymphatic, with small cells. Thus the term leukaemia was laid down in the true meaning of the word, "white blood".

In 1868 Neumann first recognized the changes in the bone-marrow in leukaemia, and introduced a third type, namely the myelogenous. But he soon came to the conclusion that the bone-mar-

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row was changed in all leukaemias, so there arose the classification into lymphatic, lienal, and myelogenous forms, depending on whether the lymph glands, spleen or bone-marrow were the principal seat of involvement.

Difficulties then arose as to the separation of leukaemias from high leucocytosis, and 50,000 white blood cells per cubic millimeter was taken as the dividing line. The absurdity of such a separation was pointed out by Ehrlich, who showed that the essential difference as far as the blood is concerned lies not in the number of leucocytes, but in the presence of embryonic, immature and perverted forms. Cases were reported in which, in spite of definite characteristic changes in the organs, there was an actual decrease in the number of circulating white blood cells below the normal. Counts might fall as low as four, three thousand or even lower, and one was forced to depend upon the presence of the pathological leucocytes for a haematological diagnosis. Later, it was further observed that in the incipient stage even these embryonic cells might not be present in the blood stream. Thus, although the term leukaemia was preserved as an expression of a specific lesion of the haematopoietic organs, it had lost all its original etymological significance. At this time such confusing terms as aleukaemic leukaemia were coined. The pathological condition was looked upon quite rightly no longer as a blood disease, but as an organ disease in which the blood might or might not be affected. There was then recognized a lymphogenous leukaemia involving primarily the lymph nodes and a myelogenous leukaemia involving the bone-marrow, and it was considered that the spleen in a sense was common to both and might partake in either lesion.

During the early years of the present century, it became apparent principally through the work of Pappenheim, Kundrat, Naegeli and others that even this conception was not strictly correct. It was shown that in lymphogenous leukaemia not merely the lymph glands and spleen, but the whole lymphoid system might be involved. Moreover in myelogenous leukaemia, the bone-marrow might remain fatty, while the spleen and lymph glands were involved; or the whole body might be the seat of a generalized systemic myeloid metaplasia, i.e., the body tissues might revert to that ubiquitous granulocyte formation which is characteristic of the earliest

months of foetal life. So the conception of the leukaemias as organ diseases was discarded and they were looked upon as systemic tissue affections, either of the lymphoid or myeloid type.

Such is our understanding at the present time. We no longer see in the leukaemias either blood diseases or organ diseases, but systemic tissue affections, which may involve certain parts of the haematopoietic system more than others and may or may not be associated with leukaemic blood. Through all these changes in our conceptions, however, the term leukaemia has persisted from its introduction, even though we now realize it is a misnomer, for it is not the essential factor but merely a secondary matter whether the actively proliferating haematopoietic cells are thrown into the blood stream.

Fortunately coincident with the arrival of our conceptions of the leukaemias as systemic tissue processes, there has appeared considerable work from the fields of anatomy and embryology, and especially by Maximow and Sabin, to show that the haematopoietic system is potentially at least scattered throughout the whole body. Not only do the lymph glands, spleen and bone-marrow contain cells capable of haematopoietic activity, but everywhere about the vessels and in the midst of connective tissue, one finds haematopotent elements. These cells have been given different names by various investigators, as, for instance, adventitial cells, wandering cells, dormant cells, histiocytes, etc. They are highly undifferentiated, and consequently omnipotential and may multiply and differentiate under proper stimuli into either lymphoid or myeloid tissue. Thus we find a quite satisfactory anatomical explanation for the ubiquitous appearance of haematopoietic elements in the leukaemias.

We have, therefore, come to a quite broad and comprehensive understanding of the nature of the leukaemic process. As regards the etiology, however, little can be said. The acute cases with high fever early gave rise to the opinion that we were dealing with the result of an infection, although no organism could be isolated nor could it be explained why the body response should be of such peculiar nature. Then again the presence, in some cases, of tumour-like formations led to a neoplastic explanation. Neither of these conceptions, however, seemed to give a satisfactory identity to the process.

Recently, however, principally through the writings of Naegeli, we have come to put the leukaemias in a certain biological relation with other progressive changes of the haematopoietic system, and although such an understanding is not completely satisfactory, it offers ground for classification and didactic study. The balance of this paper will be taken up with the development of this classification.

essentially the same in character as the normal and consequently preserve their physiological arrangement and functional activity. Such hyperplasias may be slight, as in mild infections or may reach an extreme degree, as in long continued leucocytosis. In the latter case the accessory haematopoietic cells are called into play and the spleen and liver may become active blood forming organs; moreover, if excessive,

PROGRESSIVE LEUCOPLASTIC PROCESSES

LYMPHOID

MYELOID

I. HYPERPLASIA.

LEUCOCYTOSIS

Von JAKSCH'S ANAEMIA

II. KATAPLASIA.

(a) **LYMPHOSIS**

(b) **MYELOSIS**

HYPERPLASTOID

SARCOID

LYMPHOCYTIC

LYMPHOBLASTIC

MYELOCYTIC

MYELOBLASTIC

LYMPHADENIC LIENAL MEDULLARY

ALEUKAEMIC SUBLEUKAEMIC LEUKAEMIC

ACHLOROMIC

CHLOROMIC

ACUTE

SUBACUTE

CHRONIC

III. DYSPLASIA.

GAUCHER'S SPLENOMEGALY

IV. NEOPLASIA.

BENIGN

MALIGNANT

If we analyze carefully the various pathological processes of the haematopoietic tissues which are of a progressive leucoplastic nature, we find they may be divided into four groups, namely *hyperplasias*, *kataplasias*, *dysplasias* and *neoplasias*. Moreover, these subdivisions are the same for both branches of the system—i.e., whether lymphoid or myeloid.

By hyperplasias we mean processes characterized by an increase in cell elements, which are

slightly immature white blood cells may appear in the blood stream. There has been a hurried and increased production to supply the excessive demand. The controlling mechanism of this supply to demand is not understood. It evidently is not nervous, as the bone-marrow is not supplied with nerves. Some suggest it is brought about by products of protein disintegration, while others look to an endocrine explanation. Indefinite as the last theory is, it has

considerable foundation, for the close relationship of the endocrine glands to haematopoietic dysfunction has been shown in several conditions, for example chlorosis, haemorrhagic purpura, etc. Important to note, however, in the hyperplasias, is that the controlling mechanism remains intact and with the removal of the excessive demand the normal equilibrium is restored.

In a sense on the border line between the hyperplasias and the kataplasias, which we are next to consider, lies that peculiar condition of infancy, known as Von Jaksch's anaemia. Here we are dealing with a toxic anaemia which, probably because of the age of the subject, and lack of stability of the controlling mechanism, has associated with it a persistent leucocytosis. This even simulates a leukaemia. Many immature and embryonic cells enter the blood and there may be even a generalized myeloid metaplasia, as we recently observed in a fatal case. It is noteworthy, however, in these cases that although the controlling mechanism of leucopoiesis is severely interfered with, it is not irreparably damaged, and if the patient survives, his blood picture eventually returns to normal, though this may take several years.

By kataplasia we mean a generalized systemic over-production of cells, which are of an immature and embryonic character. It consequently differs from the hyperplasias, for not only is the tissues' histological structure different from the normal, but its functional activity is necessarily altered. This generalized systemic, embryonic over-production may occur on the part of either of the two great divisions of the haematopoietic system. If it is on the lymphoid side, it is referred to as *lymphosis*; if it is on the myeloid side, it is called *myelosis*. These terms, lymphosis and myelosis, are preferable to the older confusing expressions, lymphogenous and myelogenous leukaemia. Each stands for a quite distinct histo-pathological entity, not for a blood picture.

Under these headings we further recognize subdivisions which are common to both. In some cases the over-production confines itself relatively to the haematopoietic organs, the cells are quite mature, the growth is in a measure restrained, tissue infiltration and replacement are slight, and no definite tumour-like masses are observed. Such may be termed *hyperplastoid*

lymphosis or myelosis. In other cases the over-production is much more active, the cells are very embryonic, it is not confined to the haematopoietic organs, but foci of lymphoid or myeloid metaplasia appear throughout the body, as in the skin, pancreas, adrenals, etc. These foci may go on to tumour-like growths which infiltrate and replace the neighbouring tissues, often leading to a diagnosis of *sarcomatosis*. Such kataplasias are termed *sarcoid*. There is no sharp transition between these two groups. They blend into each other. Intermediate cases are often observed. The division into hyperplastoid and sarcoid is purely artificial, but convenient, as it designates the general nature of the pathological tissue alteration.

Closer analysis of the composition of the tissue allows us to further classify according to the predominating type of cell of which it is made up. For example on the lymphoid side, we recognize lymphocytic and lymphoblastic; on the myeloid side, myelocytic and myeloblastic. Other rarer forms are also encountered, and can here be readily expressed; for example, monocytic, plasmocytic, etc.

Thus far we have confined ourselves to a general cell and tissue differentiation. We now turn to the organ chiefly affected. This may be the lymph glands, the spleen or the bone-marrow, and we therefore recognize a *lymphadenic*, a *lienal* and a *medullary* group. Combinations may here likewise occur. Do not be confused by an impression that all lymphoses are necessarily lymphadenic, or all myeloses are medullary. They generally are, but not necessarily so.

Notice that up to the present time in our classification, no reference has been made to the blood. We have defined the cell and tissue changes; the blood changes are quite a secondary matter. We know practically nothing of the factors which determine when or why cells should leave their parent soil and pass into the blood stream. But whether they do or not, or to what degree they do, does not alter the fundamental nature of the kataplastic process. We, therefore recognize as far as the blood is concerned, *aleukaemic*, *subleukaemic* and *leukaemic* subdivisions, dependent upon the lack or degree of increase of the white cell count. The subleukaemic group ranges from slightly above normal to twenty thousand. It must be remembered, however, that even with normal counts the character

of the cells is, except in very rare and incipient cases, altered.

This completes in a general way our subdivisions; however, to complete the picture there are other features which may be taken into consideration. For example, there occurs in the tissue of some rare kataplasias a greenish pigmentation, the nature of which is little understood. Some hold it to be a dissolved lipochrome. So we may further differentiate the usual *achloromic* from the rarer *chloromic* varieties. Furthermore, in order not to too completely exclude the general clinical nature of the case, it is often convenient to refer to *acute*, *subacute*, and *chronic* types.

When one attempts to analyze the fundamental nature of these kataplasias one is struck by the fact that they are very likely after all extreme exaggerations of the hyperplasias. Their histological appearance and systemic nature suggest this. Moreover, transitional conditions as Von Jaksch's anaemia seem to exist. The essential difference appears to lie, therefore, not so much in the nature of the process as in the loss of its control. It differs from the hyperplasias in the presence of an irreparable damage of the controlling mechanism and hence the fatality of the condition. As stated above, the nature of this mechanism is not known. In the endocrines we find a convenient, and, to a degree, plausible explanation. It is quite easy to believe that a toxin which in most individuals would merely cause a temporary stimulation, might produce irreparable damage in others.

As regards the dysplasias and neoplasias, little will be said, as they go beyond the scope of this

paper. Their importance here lies merely in their biological relation to the other progressive haematopoietic processes.

By dysplasias we mean a systemic process which has become so perverted and altered from the normal leucopoiesis as to be hardly recognizable as such. In this group we now place the idiopathic splenomegaly of Gaucher. Here the controlling mechanism is not primarily disturbed, but the haematopoietic tissues themselves undergo a progressive alteration, which gradually involves more and more of their substance.

The neoplasias are even further removed from the hyperplasias, for in them the process is not systemic in nature, but consists of a local emancipation of the cells with embryonic proliferation. The various true tumours of lymphoid and myeloid tissue such as lymphomata, myeloid sarcomata, etc., come under this heading. In the multiple myelomata we find in a way a transitional group which have in their multiplicity a systemic character, but otherwise are local in nature.

The classification outlined above is in a measure artificial. However, the objective method of approach is the best which is offered by the present state of our knowledge. It has didactic value, and it impresses upon us a broader and truer conception of the so-called leukaemias than the older methods afford.

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Intermittent Claudication (Thrombo-Angiitis Obliterans) Involving the Intestinal Tract—

Jacob Meyer, Chicago, reports the case of a man, aged forty-seven, with thrombo-angiitis obliterans, involving the intestinal tract. Sixteen years previously, he had suffered with the same process in both lower extremities, for which amputation had been performed. The chief abdominal symptoms were severe intermittent and later continuous pain, associated

with enormous enlargement of the colon. The clinical picture suggested a chronic ileus, because of the severe constipation, occasional vomiting, distension of the bowel and visible peristalsis. It is important to differentiate this condition from coronary sclerosis with abdominal symptoms, abdominal angina, and also from malignancy of the bowel.—*Jour. Am. Med. Ass.*, Nov. 1, 1924.

THE MANAGEMENT OF VISCEROPTOSIS

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IN every dispensary and among the clientele of every doctor are patients who are variously diagnosed as cases of gastropotosis, colonic stasis, gastric neurosis or some such condition. These unfortunates drag out a weary semi-invalid existence and are not as a rule greatly helped or improved by the symptomatic treatment commonly prescribed for them. They drift from one doctor to another and take quantities of medicine, and frequently undergo operations, all without improvement, so that they often by the number and persistence of their complaints drain the resources of the physician almost to the point of exhaustion.

Many of these individuals have visceroptosis, which is extremely common and which is very easily recognized clinically. Under certain conditions it can give rise to a formidable array of symptoms, and we must therefore always be on the alert to recognize and appreciate the importance of this underlying factor, especially where symptomatic treatment has been repeatedly tried and little or no improvement brought about.

Just what is the best way to care for these cases of visceroptosis is the question I wish to consider. In order to properly illustrate our problem I will give in detail the complaints and history of one such patient, and draw attention to the influences and the environment which I believe cause in a great measure, the development of the symptoms.

The patient was an unmarried woman of forty, who worked in a factory. She came complaining of pain in the abdomen and distension after eating, weakness, loss of weight, and constipation.

Her history was that for years her digestion had been poor, and her bowels had been sluggish, but that for the last six months she had been troubled by a dull pain in the epigastrium, which was made worse by eating, and also by colicky pains which would last several hours. Her appetite was poor and her bowels only moved when she took medicine. She had vomited on one or two occasions, but this had not

been a marked feature of her illness, and there had never been any haematemesis. She had lost, she said, fifteen pounds in weight in the last five or six months. Two months previously she felt so weak and miserable she gave up her work and remained at home, not in bed, but most of the time in her room.

She came to the city from the country twenty years ago, and had worked as a factory hand ever since. She lived in a boarding house and worked ten hours a day. She had had no illness. The family history was negative.

On examination the patient was a woman of medium height and rather slight build, weighing 115 pounds. Her hair was dark and her complexion sallow. Her nutrition was fair, but her muscles soft and flabby. Her mind was clear. There was no fever; her temperature being slightly subnormal. There was no clubbing of the finger tips. The hands and feet were cold and bluish. The pulse was regular, but small and easily obliterated; there was no thickening of the vessel walls. The apical impulse was felt with difficulty; the area of cardiac dullness was small, and the heart sounds weak, but otherwise normal. The blood pressure was 118-70 and the blood count: red blood cells 3,500,000; white blood cells 9,000; haemoglobin 65 per cent; the blood Wassermann negative.

The chest was long and flat and the breasts undeveloped, and the costal angle narrow. There were no abnormal areas of dullness, and the breath sounds were well heard everywhere. An x-ray plate of the chest showed a small "drop heart" and a narrow aorta.

The teeth were in good condition, the tongue clean, and the arch of the palate high. With the patient in bed, the abdomen presented a normal contour, but on standing there was marked bulging below the umbilicus. The liver was felt two finger breadths below the costal margin, and both kidneys and the spleen could be palpated easily. There was tenderness on deep palpation in the epigastrium, and the aortic pulsation could be easily felt. Rectal

examination was negative; there was no occult blood in the stools.

Fractional gastric analysis, showed a sluggishly emptying stomach; the fasting contents showed traces of a meal taken ten hours before; and there was 75 cc. still in the stomach two hours after a test meal. Free hydrochloric acid was present, but the acidity was low. There was no blood, visible or occult, in any of the specimens withdrawn. The barium meal showed the stomach large and J. shaped and emptied in six hours. The greater curvature was two inches below the level of the iliac crests. The caecum filled with barium lay low in the true pelvis. Twenty-four hours later most of the barium had reached the rectum, but much still remained in the caecum. The urine was high coloured and the specific gravity high; there was no albumen or sugar. The gynaecologists reported a slight leucorrhoeal discharge, and a small movable uterus. Patient was intelligent, her mind clear and her memory good, but she was worried about her symptoms and she said she was "nervous". There was well marked vasomotor dilatation of the extremities giving them a mottled appearance. There was no disturbance of motion or sensation and the reflexes were normal. She said her eyes were weak and tired easily. Her hearing was not quite as acute as normal. There was no abnormality of the lymphatic system or of the hair, skin, bones or joints.

Let us now consider our principal findings. They are, as we might expect, from the symptoms mostly in the digestive system. The stomach was large and low; the caecum lay in the pelvis. Both the stomach and large bowel emptied themselves less quickly than usual, but nowhere were there any signs of obstruction by inflammatory or malignant disease. The presence of normal secretion, the negative tests for blood, the absence of any irregularity in outline, or filling defect, and of any evidences of retention, enables us to rule out any gross disease in the stomach. The duodenum showed a good cap; there was no distortion of outline, such as results from ulcer or scar tissue formation, nor any drawing of the pylorus upwards and to the right such as often results from adhesions where there is old or chronic disease of the gall bladder.

The barium reached the caecum promptly,

ruling out the possibility of any obstruction in the small bowel, but at the end of the examination a considerable quantity of barium still remained in the caecum and ascending colon.

From such findings as these especially when linked with the fact of palpable kidneys, spleen and liver, all will agree that we have to deal with a case of visceroptosis. Gastroparesis or gastrectasis, gastric atony or colonic stasis are much too partial and limited diagnoses, and tend by concentrating on one or other organ, to distract our attention from the broad underlying condition.

Signs of visceroptosis are not confined to the abdomen. The flat chest and the small perpendicular heart, set almost in the midsternal line, and the narrow aorta, as shown by the x-ray plate, are very typical, and explain the weak apical impulse, and the small pulse found in our examination. The flabby skeletal muscles and the signs of vascular dilatation are additional evidences of the general atonic condition.

Other characteristic findings are, low blood pressure, eye troubles, pains in the neck and shoulders, and fallen plantar arches caused by weak muscles, with menstrual troubles in the woman, due to small undeveloped organs. Also the x-ray often shows that there is no attachment of the tenth ribs to the sternum.

Visceroptosis is very commonly found in a certain type of individual. The type is tall, thin and non-athletic in appearance. The condition is a congenital one and is seen in all ages. The chief factor is a constitutional weakness, which affects all structures, but particularly unstriated muscle.

An hereditary and an acquired type is spoken of. The acquired type develops after debilitating disease, or sudden reduction in weight from starvation or injudicious dieting, or from alterations in intra-abdominal pressure after pregnancy, or the removal of abdominal tumours. Although these factors may be additional or exciting causes it is doubtful if this acquired type would occur, unless there was an underlying predisposing congenital weakness.

The examination at different times of large numbers of healthy people has shown that the condition is not only a very common one but that it frequently exists without causing any symptoms. In one series where 600 students, particularly healthy and active individuals, were

examined by the x-rays and barium meal, the stomach was shown to be low in 80 per cent of the number and a low position of the colon was the usual finding.

Postmortem examinations also have shown that this low position of the bowel occurs in both sexes, and at all ages. In the male it is as frequent in the foetus as in the adult; in the female it increases a little in frequency, from infancy to old age, being slightly (6.5 per cent) more common in old age than in the foetus.

The individuals of this type who complain of symptoms are mostly unmarried females of middle age, who are generally not physically or mentally attractive to the opposite sex, and whose occupations are often sedentary.

We see then that visceroptosis is a common congenital condition and that it occurs, as has been shown clinically and at postmortem in all ages and in both sexes. It has also been shown that it can exist without causing any symptoms. One must therefore not rely too much on the position alone of these organs as a cause of symptoms in these persons and must consider the probability of some other or additional factor.

Much has been written on this subject in the last forty years. Glénard first described it in 1885 and called it "enteroptosis". He believed that the intra-abdominal pressure was decreased and that in consequence the pylorus and the duodenum-jejunal junction were dragged upon by the falling down of the small bowel and colon causing pain and dyspeptic symptoms. He recommended that an abdominal support should be worn and claimed that by this means all symptoms could be cured.

Sir Arbuthnot Lane has taught for years that as a result of irregular bowel movements there are formed certain kinks and bands at different points in the intestinal tract. These obstruct the free passage of the contents and cause stagnation and the formation by bacterial action, of toxic substances which are absorbed and cause a chronic toxæmia. When this happens he regards the large bowel as a cesspool, and recommends its removal, or its side-tracking, by anastomosis of the small bowel and the pelvic colon.

Working with the same idea that the symptoms and physical condition of these patients were caused by the mechanical obstruction of bands or kinks, various operations for their relief have been devised. Of late years it has been

taught that the trouble was due to the non-disappearance of the primitive mesentery of the right colon. In the lower pronograde animals whose bellies paralleled the ground, a long mesocolon giving a freely movable caecum and ascending colon is a normal finding, but in the orthograde or upright animals and humans, this primitive mesentery disappears and the gut should be firmly bound to the posterior abdominal wall. This firm fixation is said to be necessary for the efficient emptying of the colon in the upright posture; where the primitive mesentery persists, there is no stabilizing point and efficient emptying is difficult, resulting in an overloading and dragging down of the duodenum, pylorus and gall bladder.

An operation has therefore been devised for the relief of this condition by means of which the caecum is raised and fixed in the right flank. In this way the right colon is steadied and so enabled to empty itself more easily.

All the writers who advise some form of operative interference believe that the mechanical hindrance is the factor of greatest importance and that the physical condition of the patient is the result of chronic toxæmia resulting from blockage of the bowel contents and that this can be relieved by operation.

But there is another group who hold quite different views. They think that the mechanical hinderance is not the primary factor and that the blockage is due not to kinks or bands the result of irregular habits or a too mobile caecum but that it is due to a spastic contraction of the bowel. They hold that the primary factor is a disorderly action of the normal nervous control of the bowel which causes abnormal relaxations and contractions and that it is this that brings about stagnation or blockage and consequent absorption and toxæmia.

Sir Arthur Keith who is the chief exponent of this latter group goes so far as to say, that he has never seen an x-ray plate which showed obstruction due to a kink or a band, whereas he has seen many that showed stasis, caused by hypertonic condition of the bowel due to an improperly acting nervous system.

The result of these different views regarding the cause of the condition is clearly reflected in the treatment which is advised. One school believes that operation alone can cure, the other that relief can only be obtained by finding out

and eliminating the cause of the underlying nervous disorder.

A consideration of the nervous mechanism of the digestive tract will help us to understand many of the complaints of these patients. It consists of two principal factors, the vagus or para-sympathetic system, and the sympathetic system. The vagus system consists of the vagus nerve and its branches, and fibres from the sacral segments of the cord; the sympathetic system of fibres from the sympathetic ganglia of the thoracic and lumbar regions.

The branches from the vagus supply the stomach, small intestine and part of the colon; the descending colon and rectum are supplied by fibres from the sacral segments of the cord. These nerves carry both afferent and efferent fibres, and sensory impulses travelling centralward call forth excitator stimuli to the organs, which cause an increase in tone, motion and secretion.

The sympathetic nerves which also supply the whole digestive tract, have an exactly opposite action. They also have both afferent and efferent fibres and impulses flowing inwards, and call forth responses which cause, loss of tone with dilatation and lessening of motility and secretion.

In health we have a perfect balance between these two systems, which is the result of a continual stream of impulses carried inward and calling forth both excitator and inhibitor responses. These responses are being sent out continuously and are not under the control of the will, so that like respiration and circulation, they go on automatically all through life.

These controlling forces bring about the normal movements of the intestines, of which there are two principal kinds. One termed segmental contraction, consists of progressive contractions of narrow bands of the circular muscle fibres of the gut, short distances apart. This movement churns up the food and facilitates its absorption, and also tends to force along into the circulation, the chyme and blood in the lacteals and venules of the bowel wall. The other movement is peristalsis which forces the contents of the bowel along. Here we have wider portions of the bowel contracting, while at the same time a relaxation takes place in the portion immediately beyond, so that the contents travel

along at first rapidly and later more slowly. In a general way, we can say, that movement and secretion are greatest high up in the intestinal tract, and that absorption is greatest low down. Normally we thus have a finely adjusted control, which maintains physiological movement and secretion, and brings about absorption, and assimilation and evacuation.

Remembering then these delicate movements, and the dual system of control, we can readily understand how disastrous any slight variation from the perfect balance would be, and this is what commonly happens under abnormal conditions. Where there is appendicitis or ulcer, or gall bladder disease, or disease outside the digestive system, we have streams of abnormal impulses flowing in to the central nervous system, calling forth powerful responses. In this way we get derangement of the normal well balanced movements and as a resultant, constipation or diarrhoea depending upon whether the circular or longitudinal fibres are the most stimulated. In the same way toxæmia from some more chronic focus of infection may cause incoordination of movements, excessive vagus action on the one hand setting up hypersecretion and spastic contraction of the circular muscle fibres resulting in cramps, acid eructations and colicky pains, or sympathetic overaction on the other which causes overdistension of the gut and the formation and accumulation of gas which results in rumblings, discomfort and constipation.

Abnormal psychic conditions can also set up symptoms. Strong emotions such as fear, anger or worry cause excessive quantities of various internal secretions such as adrenalin to be poured into the blood. These secretions act powerfully on the digestive system causing such well known phenomena as nervous diarrhoea, or the involuntary evacuation of the bowels from intense fear, or the rumbling noises of the bowel so often noticed during emotional stress. In the same way chronic digestive disturbances may not infrequently result from overwork, or from unpleasant or gloomy surroundings.

Let us now return to our patient. We found that she had visceroptosis and we know that she must have been born with it. She has never been robust and her digestion has always been uncertain, but she had been well enough to earn

her living by working a considerable number of hours each day. Lately her symptoms became so much more marked that she had to stop work and seek medical aid. The beginning may have been some trivial indisposition negligible in a more robust or affluent person but sufficient to cause her, depressed and fatigued by twenty years of dull routine, to worry about her health and her future. Remember she is one of the weaklings, and in the struggle for existence, overwork, illness and depressing surroundings would affect her more profoundly than a stronger individual. So these emotional factors set up incoordination of her intestinal movements resulting in stagnation with decomposition of the bowel contents. In this way her symptoms of distension, colicky pains and weakness and loss of weight may be accounted for, and the clinical findings of gastropnoxis and colonic stasis explained.

The treatment must be general and special. *General treatment* consists of measures which aim at the removal of the cause. Considering as we must the primary factor to be a disordered nervous system the result of worry and anxiety, in order to effect a cure these causes must be removed. This of course is often difficult to do, and explains the lack of improvement so often noted, but much can be done by encouragement and guidance especially when we realize the fundamental importance of their removal.

The assurance, that the condition is not a fatal one, that its cause is well understood and that the faithful co-operation of the patient with the doctor will result in the relief of symptoms is often sufficient to bring about a marked improvement.

Special treatment is directed towards the relief of symptoms. The digestion can be improved and the muscles strengthened. Suitable glasses and plantar arch supports often give great help.

The patient must take small quantities of good, plain food, to avoid overloading her stomach and to facilitate the passage through the intestine. Fats should be taken sparingly, as their digestion is slow and they do not agree with these patients, but carbohydrates are usually well borne. Meals should be taken dry or with only a small quantity of fluid, water should be taken on rising and retiring and between

meals, and the patient should lie down for an hour after the principal meal. Strong cathartics must be avoided but some preparation of paraffin oil may be used, in order to get a daily movement. Clothing should be arranged to avoid any downward drag on the abdomen.

She must be taught exercises designed to strengthen the abdominal muscles and to knead the bowels and their contents. These exercises should be performed daily on arising and need only take a few minutes; but they are of great importance, as it is recognized that the support of the abdominal viscera comes from the abdominal muscles and not in any way from the mesentery whose function is only to carry blood vessels and nerves and not to act as a suspensory ligament. In this way the intra-abdominal pressure is increased and the organs supported.

Strapping of the abdomen, or some light abdominal support which can be snugly adjusted, increases intra-abdominal pressure and gives these patients a feeling of solidity and sense of support. Glénard in his thesis recommended that a belt should be worn. This belt he says should be elastic, should follow the border of the pubis and inguinal folds and should cross at the level of the great trochanter to the back. The upper border should be straight and a finger's breadth below the umbilicus, and the band should be 7 cms. wide at the sides. By this means he said, he could cause the immediate disappearance of all but a few minor symptoms.

Not one type of belt is suitable for all patients, but it should be light, easily adjusted and fitted to the individual, one of the best is a pad in the form of a double truss but there are many different forms and makes.

Some patients are only slightly relieved by these measures and in these surgery, sometimes does good. The raising, and the fixing of the caecum in the iliac fossa, often helps the evacuation of the bowels and improves the general condition of the patient, but it should only be done after all other measures have been tried and should never be lightly undertaken.

Much is claimed for this operation by its advocates. To them the mechanical factor is the important one, and the nervous irritability and unstable circulation are regarded as the secondary effects of toxæmia. By the fixing of the caecum and the securing of proper bowel

movements, they say these things can be cured and the further consequences of dragging on the stomach, duodenum and gall bladder be avoided.

But when we think of the narrow chest and the small heart and aorta, and the frequently unattached tenth ribs, and the undeveloped pelvic organs, and in fact the whole appearance of these patients, we can see that the incomplete evolution of the colonic mesentery is not the whole story, though it may be one factor and a large one in the causation of symptoms.

The late results of this operation are not yet sufficiently well known, though the general impression is that it is helpful. We must, however, remember that the operations of stitching up the stomach and the suspension of the kidneys and

uterus were all highly lauded in their day, but have now all passed into oblivion.

The pernicious habit of taking out the appendix through a small opening for the vague abdominal pains of these patients, only adds to their troubles. Adhesions and a weakened wall may cause definite mechanical difficulties, and in the continuation of their symptoms is certain to depress and to make them more hopeless than before.

By the use of some or all of these different measures our patient's symptoms can be relieved. Constitutionally she is not fitted to fight strenuously in the battle of life, but by proper guidance we can at least keep her well enough to earn her living, and frequently can bring about such improvement as to enable her to live in comfort.

BISMUTH IN SYPHILIS

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"FOR my part, I prefer to alloy it (mercury) with a mixture of black hellebore, orris root, galbanum, asafetida, oil of mastic and oil of native sulphur. So without hesitation, spread this mixture on your body and cover with it your entire skin, with the exception of the head and of the precordial region. Then, carefully wrap yourself in wool and tow; then get into bed, load yourself with bed covering and thus await until a sweat bathes your limbs with an impure dew. Ten days in succession renew this treatment; for ten entire days you are to undergo this cruel trial whose beneficial effect will not cause you to wait.

"As a matter of fact, very soon an infallible presage will announce to you the hour of your freedom. Very soon you will feel the ferments of the disease dissolve themselves in your mouth in a disgusting flow of saliva, and you will see the virus, even the virus, evacuate itself at your feet in rivers of saliva. If, during the course of this treatment, small ulcers develop in your mouth, have a care to fight them with gargles of milk or by a decoction of pomegranate privet.

This treatment being completed, you may then, without fear recall Bacchus to your table and enjoy in full liberty the generous nectars of Phoetia, of Falernum and of Chios."

With these words, Fracastor¹, to whom we owe the name "Syphilis", in 1530 celebrated, in his famous poem, the treatment of the disease, and this only thirty-seven years after the disease had invaded Europe from the American² shore.

For nearly 400 years mercury represented the only specific against the scourge that everywhere marched "pari passu" with civilization and it was not till 1910, when Ehrlich and Hata discovered an arsenical derivate—dioxydiamidoarsenobenzol or "606"—that the famous specific born of empiricism appeared to be overshadowed. In this new preparation, only one injection of which was to free the whole body from the infectious microorganism, the ideal therapy of the disease, "the therapia magna sterilisans", seemed to have been at last realized. After the first 1400 cases treated with "606", Wechselsmann, who first supplied Ehrlich with the proper clinical material, could say: "Con-

sequently one must absolutely acknowledge the practical possibility that for a series of cases of syphilis a 'sterilisatio magna' is attainable"...³

That with one injection of "606" the disease could be extirpated was at the time not only thought possible by Ehrlich and Wechselmann, but was assented to by a large number of men in Germany and elsewhere—Grouven, McDonagh, Wolters, Treupel, Max von Zeissls⁴, etc. In proof of their statements, they pointed to the disappearance of the spirochaete of Schaudinn from the lesion, to the negative reaction of the Wassermann test and to the disappearance of all clinical symptoms. Time showed that the "therapia magna sterilisans" is Utopian. Recurrences after the "unique" injection were everywhere noted but the high therapeutic value of the new arsenical preparation for syphilis could not be denied and it took first place in this field, while mercury, though not absolutely discarded, fell to second place as a means of treatment.

However, "Salvarsan", as the "606" of Ehrlich was afterwards named, had come to stay, and for the past fifteen years it has been the most powerful, indeed the only specific that we have in the treatment of spirochaetal infections, mercury being used simultaneously for its synergetic action. Such combined treatment is at present the one adopted by all schools and the satisfactory effects are generally recognized. The disappearance of the spirochaete from the skin lesions, the improvement in all subjective symptoms and the change from positive to negative Wassermann reaction, are indications of the powerful effect of the drugs.

As a rule, we may say that when the above conditions are obtained, a patient may be declared cured, though he has to continue under clinical and occasional serological observation, to prevent any relapse of the disease and this especially in relation to the nervous system.

Standard treatment for syphilis.—The treatment followed in this clinic is that outlined by Patch⁵, which has given very satisfactory results. In this "résumé", the said standard treatment has been adopted, but with the idea of rendering a tabular synopsis of the same, I have reduced the standard classes from four to one, including in this standard technique cases of primary, early secondary syphilis, late secondary and tertiary syphilis. Schedule treat-

ments naturally are not to be followed *ad literam*, the clinician using his discretion in modifying them according to the circumstances of the case.

A complete anti-syphilitic treatment, whether dealing with a primary, secondary or tertiary syphilis, lasts on an average two years. During this time, a man of an average weight of seventy kilos (154 lbs.), is given about 9 gms. of "606", i.e. eighteen injections of 0.5 gm. ($7\frac{1}{2}$ grains) each, allowing 0.1 gm. for every thirteen kilos (30 lbs.). During the same period of time, fifty-four injections in doses of 0.06 gm. each, i.e. an amount of 3.24 gms. of mercury salicylate is given (See Table No. 1). The quantity for an average woman of sixty kilos (132 lbs.) for the same length of time would be about 7.2 gms. of "606" in doses of 0.40 gm. each and 3.24 gms. of mercury salicylate in doses of 0.06 gm. each. After the first year of treatment, potassium iodide may be given during the rest of six or eight weeks following D, E and F courses, in doses of 2.00 gms. per day. This naturally is decided by the physician in charge according to the condition of the patient.

A patient may be considered as cured if, after two years of intensive treatment, the Wassermann reaction on blood serum and on the cerebrospinal fluid, has given a negative result after D, E and F courses. If the serological tests above mentioned have been negative after the last three courses (D, E, F), then a rest of three months is given to the patient. If at the end of this rest the Wassermann reaction still keeps negative, another three months' rest is given. When at the end of this second rest the serological findings are negative, the Wassermann reaction is again repeated after six months and if still negative, one may dismiss the case as cured. (See Table No. 2).

The arsenical preparation used in this clinic belongs to the "606" group, but at times and especially if patients are hypersensitive to this group, as in women and children, the "914" group preparations are given. Naturally in this case the dose varies; a 0.5 gm. of "606" for a man would approximately correspond to 0.75 gm. of "914"; for a woman a 0.4 gm. of "606" to 0.6 gm. of the "914".

Infants.—In infants, the same relation holds between weight and the amount of arsenic. A deep intramuscular injection of the "914" solu-

tion is made preferably in the gluteal region. To a baby one month old weighing about ten pounds, we will give 0.04 gm. of "914"; at six months (16 lbs.) 0.07 gm.; at twelve months (24 lbs.) 0.11 gm.; at five years (35 lbs.) 0.17 gm.; at ten years (54 lbs.) 0.26 gm. though at this age and even before, the intravenous method of treatment may be started.

The administration of mercury to infants is by inunction, the quantity to be used, every day or every other day, being 5, 20 and 50 centigrammes of mercurial ointment (or the size of a small pea). In babies between one and three months of age, especially in skin and bone lesions, a daily bath of mercury perchloride (0.5 to 1.0 gm. to a bath) is advised by many as a good substitute for the inunctions. At the age of eight to ten years, children may be given intramuscular injections of mercury salicylate in doses of one quarter to one half grain (0.01-0.03 gm.) once weekly. Naturally, during the administration of mercury, due attention must always be paid to the mouth and teeth condition as in adults.

Treatment may be of a shorter duration in those cases which seek medical advice at a very early period, when the Wassermann reaction still shows absence of antibody formation. No fixed rules can be laid down in the treatment of such a disease especially in an outdoor clinic, where patients cannot be compelled to undergo a strict routine treatment for such a long time. But under no circumstances ought a physician to discharge as cured a patient who first consulted him with a secondary lues, until two good years of uninterrupted treatment, and until he satisfies himself clinically and serologically that there is not the slightest suspicion of an infection of the nervous system.

This is the point that needs to be emphasized in the treatment of lues. Our aim is not only prevention of the spread of the infection to others, due for the most part to the presence of spirochaetes in skin lesions, but above all the prevention of irreparable damage to the nervous system, damage that no arsenical, mercurial or other preparation can ever repair.

TABLE I
ROUTINE TREATMENT WITH "606" AND Hg.

<i>Weeks of Treatment.</i>	<i>Intensive Course A</i>	<i>Rest</i>	<i>Medium Course B</i>	<i>Rest</i>	<i>Ordinary Course C</i>	<i>Rest</i>	<i>Course D</i>	<i>Rest</i>	<i>Course E</i>	<i>Rest</i>	<i>Course F</i>	<i>Rest</i>	
1	I "606"	6 weeks	I "606"	6 weeks	I "606"	6 weeks	Same as Course C	8 weeks. Potassium iodide 2 gms. per day (XXX grains).	Same as Course C	8 weeks. Potassium iodide	Same as Course C	8 weeks. Potassium iodide	
2	1 Hg.		1 Hg.		1 Hg.								
3	II "606"		2 Hg.		2 Hg.								
4	2 Hg.		3 Hg.		3 Hg.								
5	3 Hg.		II "606"		4 Hg.								
6	III "606"		4 Hg.		5 Hg.								
7	4 Hg.	6 weeks	5 Hg.	6 weeks	6 Hg.	6 weeks	Same as Course C	8 weeks. Potassium iodide 2 gms. per day (XXX grains).	Same as Course C	8 weeks. Potassium iodide	Same as Course C	8 weeks. Potassium iodide	
8	5 Hg.		6 Hg.		7 Hg.								
9	IV "606"		III "606"		8 Hg.								
10	6 Hg.		7 Hg.		9 Hg.								
11	7 Hg.		8 Hg.		II "606"								
12	V "606"		9 Hg.										
13	8 Hg.	6 weeks	IV "606"	6 weeks		6 weeks	Same as Course C	8 weeks. Potassium iodide 2 gms. per day (XXX grains).	Same as Course C	8 weeks. Potassium iodide	Same as Course C	8 weeks. Potassium iodide	
14	9 Hg.												
15	VI "606"												
Total "606": 3 gms. Total Hg.: 0.54 gm. Total weeks of rest, 6		Total "606": 2.00 gms. Total Hg.: 0.54 gm. Total weeks of rest, 6		Total "606": 1.00 gm. Total Hg.: 0.54 gm. Total weeks of rest, 6		Total "606": 1 gm. Total Hg.: 0.54 gm. Total weeks of rest, 8		Total "606": 1 gm. Total Hg.: 0.54 gm. Total weeks of rest, 8		Total "606": 1 gm. Total Hg.: 0.54 gm. Total weeks of rest, 8		Total "606": 1 gm. Total Hg.: 0.54 gm. Total weeks of rest, 8	

Total amount of "606": 9 gms.
Total amount of Hg.: 3.24 gms.
Total weeks of rest: 42 weeks.
Actual treatment: 72 weeks.
In all: 114 weeks.

TABLE II
SCHEDULE OF ANTI-SYPHILITIC TREATMENT
STANDARD TREATMENT

Stages of Disease	Courses	Rest	Remarks	Routine of Discharge
Primary and Early Secondary Syphilis. Spirochæte: positive. W.R.: negative or positive. Generalized eruption. Cerebrospinal Fluid: negative.	Intensive Course A	6 weeks	If at the end of this course W. R. is negative, proceed with B course; if positive repeat A course, (A2). If after a second intensive course W.R. on the serum and C.S. Fluid is still positive, repeat once more the intensive course (A3) with a rest of 6 weeks between and then proceed with B course.	A patient is discharged as cured if after 2 years' continuous treatment, (during which time not less than 9 gms. of "606" and 3 gms. of Hg. have been given), the W.R. on the blood serum and on the C.S. Fluid has been repeatedly and consecutively negative at the end of courses D, E, and F and if no signs of neurosyphilis are apparent. Furthermore, the patient is made to report for the following year after F course, twice every succeeding 3 months, and twice every succeeding 6 months for another W.R. If this becomes positive another series of medium courses is given.
Secondary and Tertiary (including Syphilis of the Nervous System). Skin, bone and vascular lesions. W.R.: positive on blood serum. C.S. Fluid: W.R. positive or negative: Cell count, globulin and colloidal gold curve: normal or abnormal.	Medium Course B	6 weeks	If at the end of this course W.R. is negative, proceed with C course; if positive repeat B course (B2). If W.R. on the serum and C.S. Fluid is positive and if other signs of neuro-syphilis exist, the medium course may be repeated 2 or 3 times (B3, B4), with 6 weeks' rest between each, and then proceed to the ordinary course.	
	Ordinary Course C	6 weeks	After an ordinary C course followed by 6 weeks' rest, D, E, F, etc., may be given with intervals of 8 weeks' rest. During these rest periods Potassium Iodide is given.	

Bismuth treatment of syphilis.—There are however a certain number of luetic patients who, though treated intensively for a protracted period of time and free from any manifest symptoms of the disease, have the peculiarity of giving always a positive Wassermann reaction. These are generally known as "Wassermann-fast" cases. The fact that arsenic and mercury are unable to negative the serological test in these cases has naturally incited syphilologists to seek some more powerful weapon to destroy the last activities of the disease. For the past two years, the literature regarding the treatment of syphilis has increased, owing to the new acquisition of bismuth to its therapy. The results obtained by different schools have been so encouraging that I undertook the task of trying the effect of bismuth in this department.

The first experiments with bismuth began in 1889 with the work of Balzer⁶ on experimental syphilis on dogs, followed in 1916 by that of Santon and Robert⁷ on the treatment of fowl spirillosis. Only in 1920, through the experiments of Sazerac and Levaditi^{8a & b}, was bismuth

introduced in therapy as a new specific in lues. In the words of Levaditi⁸: "Sodium and potassium tartro-bismuthate and metallic bismuth achieve rapid cicatrization of syphilitic lesions at all stages of the disease. Although bismuth has only been recently employed, I have every reason to believe that, when used early and in sufficient quantity, it will cure syphilis. The absence of recurrences of the disease, and the effect on the Wassermann reaction, only serve to confirm this opinion. Equal, from a therapeutic point of view, to arsenical preparations, bismuth is a valuable antisyphilitic remedy, particularly in those manifestations of the disease which resist the action of arsenic and mercury."

Dale¹⁰, in his presidential address to Section I. of the British Association in Toronto (1924), referring to bismuth chemotherapy, says: "According to Levaditi and Nicolau, these preparations have, by themselves, a relatively weak action, or none at all, on the spirochaetes outside the body. If they are mixed, however, with a cell-free extract of liver, which is itself harmless to spirochaetes, the mixture, after incubation, acquires

a potent spirochaeticidal action.....If these observations are confirmed, there will be a strong indication that some cell-constituent enters into the composition of, or is essential to the formation of, the directly active substance from any of the derivatives of arsenic, antimony, or bismuth, as a preliminary to its action on an infection due to a trypanosome or a spirochaete."

Sazerac and Levaditi employed especially the tartro-bismuthate of potassium and sodium, which contains about 64 per cent of metal suspended in oil. Levaditi afterwards used simply precipitated bismuth in an isotonic medium, containing about 96 per cent of metallic bismuth. Under this form, bismuth seems to be absolutely painless for intramuscular injections.

In a very short time, the various salts of bismuth, alone or combined with mercury, with iodine or with quinine, gave birth to a legion of proprietary preparations, as for example: trepol, neotrepol, muthanol, quimby, luatol, rubyl, bismuthoidol, muthydral, sigmuth, bismuth-ionoid, oleobismuth, bismogenol, bisoxyl, bishydrol, etc.

The preparations of bismuth mostly in use are the tartro-bismuthate of sodium and potassium; precipitated bismuth in isotonic solution; the hydroxide of bismuth; and bismuth, iodine and quinine; all of which have been tested in this department. All observers who have used bismuth in the treatment of syphilis seem to agree as to its efficacy. Clinically it has a rapid and powerful action in all stages of the disease for its cicatrization and rapid healing processes. In neurosyphilis, symptoms such as headache, convulsions and tabetic pains seem to subside very promptly. Bismuth has a rapid action on the cerebrospinal fluid, as in the case reported by Fournier and Guenot¹¹, where in an acute syphilitic meningitis the lymphocytosis fell from 400 to 7 per cmm. after the fourth intramuscular injection of bismuth. Many authors, like Nicolas, Massia and Gate¹² praise bismuth for its efficacy in cases refractory to arsenic and mercury.

As to the spirochaeticidal action of bismuth, while most authors like Sazerac and Levaditi, Fournier and Guenot, assert that no spirochaetes are to be found in primary chancres three or four days after the first injection, others, e.g., Raiziss, Severac and Winicov¹³, Simon and

Bralez¹⁴, McCafferty¹⁵, aver that only after the third injection do the spirochaetes disappear.

In the opinion of most authors, the effect of bismuth treatment on the Wassermann reaction is very encouraging. Fournier and Guenot¹¹ found in eighteen cases of syphilitic chancres with a strong positive Wassermann that six became negative, while the other twelve showed a great improvement in the degree of the reaction. In secondary syphilis, the Wassermann became negative at the end of the second course of bismuth. Tixier¹⁶ found that in hereditary lues affecting the nervous system, the Wassermann from strongly positive became negative after intramuscular treatment with bismuth. Jaloustre, Fourcade and Lemay¹⁷ found that when bismuth treatment is given in primary luetic patients when the Wassermann is still negative, the reaction in the middle of the first series of injections has a tendency to shift towards a positive, but this soon disappears at the end of the series and a wholly negative reaction is the result. When the Wassermann is positive at the beginning of the treatment, two series of bismuth treatment are sufficient to give a negative serological result. Müller¹⁸ found that in eighteen cases of lues with a positive Wassermann, eleven gave a negative result four weeks after a complete course of treatment, the other seven giving a negative Wassermann in from twelve to fourteen weeks after the treatment.

Lehner and Radnai¹⁹ in a series of thirteen patients found that, although the Wassermann was strongly positive at the end of each course, all became negative a month after the last treatment.

Ramel²⁰ asserts that bismuth, though slower than arsenic, has probably a greater advantage over it in keeping the reaction negative for a longer period.

Cajal and Spierer²¹ found that bismuth works as well as arsenic and that the new treatment has great value in changing the Wassermann from positive to negative. Pardo-Castello²² found that out of nine cases with positive Wassermann, seven gave a negative result, two remaining positive and this after only one course of bismuth. McCafferty²³ states that in a series of twenty-five patients, mostly tertiary cases, treated intensively with arsenic and mercury and regarded as Wassermann-fast, subsequent treatment with bismuth invariably gave the de-

sired reaction. In primary and secondary lues, bismuth seems to have a somewhat slower action than the arsenical preparation both clinically and serologically.

Nathan and Martin²⁴ have studied the effects of bismuth treatment on the Wassermann and on the Sachs-Georgi reaction, the latter being used for quantitative determination. They found that in early primary cases of syphilis, when the Wassermann is still negative, 80.8 per cent of the cases showed a shifting towards a positive reaction higher than that obtained with salvarsan, as has been already noted by Fourcade, Jaloustre and Lemay. Also sero-positive cases of secondary syphilis treated with bismuth did not give a negative reaction in 19.2 per cent of the cases. The authors doubt whether bismuth could be used in the abortive treatment of lues.

Administration and dosage.—The best and safest way to give bismuth is by deep intramuscular injections in the gluteal region, as is done with mercury. The intravenous way is dangerous and should not be used. Raiziss, Severac and Winicov¹³, in their experiments on the rabbit, found that one injection of 3 mgs. of bismuth per kilo, given intravenously, will cause severe nephritis. The usual dosage applicable to almost all preparations of bismuth on the market is that advocated by Levaditi, i.e., "10 to 20 centigrammes of active bismuth repeated every three or four days, until a total dose of 2.8 or 3 gms. has been reached. The series of injections should be repeated after an interval of a month, until the Wassermann reaction becomes negative." To babies under one year of age, 0.025 to 0.05 gm. of precipitated bismuth in isotonic solution is given; from one to four years 0.05 gm.; from four to nine years 0.075 gm.; from ten to fifteen years 0.10 gm.; one intramuscular injection to be given every four or five days, watching always for tolerance. As the various bismuth preparations in our hands react according to the percentage of bismuth they contain, I shall not allude to any of the products by their proprietary names. The preparation of bismuth used in preference in our clinic has been precipitated bismuth in isotonic medium. The dose was 20 centigrammes per injection every fourth day, amounting to 2.4 gms. for each course. At present we are having good results in following a routine treatment

with "606" and bismuth as shown in the table below.

TABLE III
ROUTINE TREATMENT WITH "606" AND Bi

Weeks of Treatment	Intensive Course A	Rest	Medium Course B	Rest	Ordinary Course C	Rest
1	I "606"		I "606"		I "606"	
2	1 Bi.		1 Bi.		1 Bi.	
3	2 Bi.		2 Bi.		2 Bi.	
4	II "606"		3 Bi.		3 Bi.	
5	3 Bi.		4 Bi.		4 Bi.	
6	4 Bi.		II "606"		5 Bi.	
7	5 Bi.		5 Bi.		6 Bi.	
8	6 Bi.		6 Bi.		7 Bi.	
9	III "606"		7 Bi.		8 Bi.	
10			8 Bi.		9 Bi.	
11			III "606"		10 Bi.	
12	7 Bi.				11 Bi.	
13	8 Bi.		IV "606"		12 Bi.	
14	IV "606"		9 Bi.		II "606"	
15			10 Bi.			
16	9 Bi.		11 Bi.			
17	10 Bi.		12 Bi.			
18	11 Bi.		IV "606"			
19	12 Bi.					
20	V "606"					

Complications due to bismuth.—A few authors, among others Huchard²⁵, Milian and Perrin²⁶, Levy-Bing²⁷, Simon²⁸, Carle²⁹, Lacapère³⁰, Bloch³¹, Azoulay³², state that bismuth is not free from toxicity as is shown by stomatitis and disturbances of the stomach, intestines and impairment of the kidneys during or after bismuth treatment, complications which also ensue from the use of mercury. On the other hand, the majority of investigators, such as McCafferty²³, Raiziss, Severac and Winicov¹³, seem to agree that bismuth in the doses given is less toxic than mercury, the stomatitis and gingivitis of bismuth being always of a milder form and more easily controlled than the corresponding mercurial conditions. As for the kidney complications, in man, as Müller¹⁸ observes and Ahlswelde³³ confirms, no author has yet mentioned a single case.

Personal experience with bismuth.—In this paper I wish to emphasize particularly the importance of bismuth treatment in those cases which persist in giving a positive Wassermann even after the most prolonged arseno-mercurial treatment. Bismuth alone has the property of turning a strongly positive Wassermann to negative in a short time. (See Table No. 4).

TABLE IV
PERSONAL EXPERIENCE WITH BISMUTH

Case No.	Name of Patient	Diagnosis	Spirochaetes	W.R.	Courses of "606" and Hg.	W.R.	Courses Bismuth 12 injections each	Spirochaetes	W.R.
1	Mr. P. L.	Prim. lues. Hard chancre	Very numerous	Negative	None		3	Still present after 4 injections	Positive
2	Mr. C. MacN.	Prim. lues. Hard chancre	Very numerous	Positive	None		3 plus "606"	Disappeared after 1st injection "606"	Negative after 1st course
3	Mr. L. P.	Secondary lues. Maculopapular rash	Present	Positive	None		3		Positive
4	Mrs. W. B.	Secondary lues. Condylomata of the vulva	Very numerous	Positive	None		3	None seen after 3rd injection	Positive
5	Mrs. E. L.	Secondary lues. Condylomata of the vulva	Very numerous	Positive	A,B,C D,E,F G,H	Positive	3	None after 2nd "606"	Negative after 1st course of Bi.
6	Mrs. E. P.	Secondary lues. Rash Mucous patches	Very numerous	Positive	A,B,C D,E	Positive	3		Negative after 1st course of Bi.
7	Mr. U. M.	Late secondary lues		Positive	A,B,C D,E,F	Positive	3		Negative after 1st course of Bi.
8	Mr. S. C.	Late secondary. Headache		Positive	A,B,C D,E,F G	Positive	3		Negative after 1st course of Bi.
9	Mr. A. S.	Late secondary lues. Headache, weakness		Positive	A,B,C D	Positive	3		Negative after 3rd course of Bi.
10	Mrs. C. R.	Late secondary lues. Ulcer of pharynx		Positive	A,B,C	Positive	3		Negative after 2nd course of Bi.
11	Mrs. W. T.	Tertiary lues. Ulcer right leg		Positive	A,B,C D,E,F	Positive. Jaundice	3		Positive after 3rd course
12	Mrs. A. L.	Tertiary lues. Endocarditis		Positive	A,B,C D,E,F G,H	Positive	3		Negative after 3rd course
13	Mr. A. H.	Tertiary lues. Swelling left tibia		Positive	A,B,C D,E,F G	Positive. Jaundice	3		Negative after 1st course of Bi.
14	Mrs. J. A.	Tertiary lues. Gumma of the right leg		Positive	A,B,C D,E	Positive	3		Negative after 2nd course of Bi.
15	Mrs. J. T.	Tabes. (Chancre 20 years ago.) Tabetic pains		Positive on blood serum and on C.S. fluid. Coll. Gold: tabetic curve	A,B,C D,E,F	Positive. Pains not improved	3		Weak positive on blood and C.S. fluid. Pains disappeared. Coll. Gold curve not changed.

Case 11 is shown as an example of arsenomercuro-bismuth Wassermann-fast case. Case 15 shows the effect of bismuth on tabes. Case 1, of primary lues, with a negative Wassermann, shows, as has already been noted by Müller, Lehnner and Radnai, that notwithstanding the bismuth treatment, the Wassermann reaction shifts to positive at the end of the first course and remains positive even after three consecutive courses of bismuth. This case also shows the presence of spirochaetes in a slowly-healing chancre after the fourth injection of bismuth. Case 2 also of primary lues, and with a positive Wassermann at the start, on the contrary, gives a negative Wassermann after a first course of "606" and bismuth and the spirochaetes had disappeared after the first injection of "606". Case 3 and 4 of early secondary lues still gave a positive Wassermann after three complete courses of bismuth. In these few typical cases chosen out of a large series of patients treated with bismuth, no serious complications were noted, with the exception of two mild cases of stomatitis.

At present I have on record only one case which although pronounced cured, after having been very intensively treated with bismuth alone, subsequently showed a definite clinical and serological recurrence of the disease in less than a year. It is too soon yet to commit ourselves on the subject, but my opinion is that only three courses of bismuth alone are not sufficient to cure syphilis and that, whether with mercury, arsenic or bismuth alone or combined, it takes a very long period of treatment and vigilant observation of the case before syphilis may be pronounced cured.

Conclusions

The record of these few cases, chosen out of a large series treated with bismuth, shows that:

1.—Bismuth, as also noted by Raiziss, Severac and Winicov, Simon and Bralez, and McCafferty, has in primary syphilis a slow spirochaeticide action as compared with "606", the spirochaetes being found in the lesion after the third and fourth injections.

2.—In primary and secondary syphilis, the action of bismuth, (as already indicated by Ramel, Jaloustre, Fourcade and Lemay, McCafferty, Nathan and Martin), has a slower action than arsenic on changing the positivity of the Wassermann reaction.

3.—On account of its slow action in primary and secondary lues, bismuth ought not to be used in abortive treatment of lues, as has already been indicated by Nathan and Martin.

4.—Bismuth, in cases of latent lues already extensively treated with arsenic and mercury and which are Wassermann-fast, seems to have a great advantage over the other specifics in changing in a very short time the Wassermann reaction from positive to negative, although one must admit that mercuro-arseno-bismuth Wassermann-fast cases also exist.

5.—Bismuth in conjunction with "606" seems to be more effective than mercury plus "606" in changing the Wassermann reaction from positive to negative.

6.—Bismuth seems to be of great help in relieving the pain of tabetics.

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THE HORMONE OF OESTRUS*

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BEFORE considering the recent work on the hormone of oestrus it is perhaps well that we remind ourselves of some of the relative facts which have been previously presented. The organ most affected in the period of oestrus is the ovary and it has long been known that this gland exerts an intense influence over metabolism. The extirpation of ovarian tissue leads to very distinct results; if performed before puberty female characters are never developed, and if after puberty the whole oestrous cycle stops. Transplantation of the ovary will in some instances cause an infantile uterus to develop and, more frequently, the oestrous cycle of an ovariectomized individual to return. That these specific effects are due to internal secretion may be shown by section of all of the associated nerves. In the ovary there are the Graafian follicles, the corpora lutea and the interstitial cells of Steinach. From each of these different tissues there seems to come a distinct hormone having each an especial action. From the efforts of several careful observers (detailed information may be gotten from Marshall's *Physiology of Reproduction*)¹ it would appear, that the interstitial cells secrete a hormone controlling sex characteristics and becoming manifest at puberty, the influence being over the growth of all the accessory sex organs. It would appear, that the active principle of the corpus luteum has a chalone action on the oestrus and inhibits, the activity of the pituitary gland, or one of its secretions, thus controlling the changes in the uterus during pregnancy, towards the termination of which condition corpora lutea disappear. Lastly, it would appear, that the Graafian follicles contain a chemical entity which causes the onset of "heat."

It is with the hormone of the Graafian follicle that we are at present interested. In September of 1923 Allen and Doisy², of Wash-

ington University Medical School, St. Louis, reported the localization of the hormone of oestrus. They removed the contents of the follicles of hog ovaries and having prepared rats by bilateral oöphorectomy they administered subcutaneously, at intervals of five hours, three injections of this liquor folliculi. Forty to forty-eight hours after the first injection, all of the animals were in full oestrus as determined by the smear method of Stockard and Papanicolaou³. As a check on these results the animals were killed and the uterus, the oviducts, and the vagina of each studied histologically. These tissues were in a typical oestral condition as described for rodents.

No less than four previous observers, working separately, have injected this liquor folliculi but their results have been variable and not convincing, due to the lack of a practical test for the action. An account of the above mentioned smear method is therefore important. A small nasal speculum fitted with a thumb screw is introduced into the vagina daily and smears were made from the substances present. In the first twenty-four hours of oestrus there is an abundance of fluid, which is for about the first half of the time of a mucoid consistency, it then changes to a thick and cheese-like substance which finally becomes slowly liquified and serous, this latter exists for a few hours and then disappears. Often towards the end of the process a slight trace of blood may be present; otherwise the fluid is milky-white or cream-coloured. They divide the process into four stages:

1. Of mucous secretion lasting from six to twelve hours.
2. Of cheese-like secretion, from two to four hours.
3. Of serous fluid, from four to six hours.
4. Of bloody discharge, from one to two hours.

All of these changes occur during twenty-four hours. During this time, macroscopically, there

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is congestion of the entire genital tract. The vessels are all large and conspicuous, and all of the parts are swollen and inflamed. After this twenty-four hour period these signs disappear completely and the vaginal orifice closes to the extent that it becomes very difficult of access. Microscopically, in the first stage, there are numerous squamous-like cells with very small nuclei in various grades of marked degeneration. These are from the wall of the vagina. In the second stage there are enormous numbers of cells from the upper portions of the vagina and a few from the uterus. Morphologically they are in a better state of preservation than those of the previous stage. They are so numerous that the substance is cheesy. At the third stage the cheesy mass liquifies and the cells of the previous stage become fewer and fewer, and now a great number of polymorphonuclear leucocytes appear so that towards the end, the larger cells are seen separated from one another and individually surrounded by leucocytes which dissolve them and in some instances dissolve their way into them. This happens even before the cells have left the walls of the uterus and vagina. The last stage varies from the third only in that the fluid is thinner and that it contains red blood cells. The fluid gets less and less as an oestrus supervenes, which in the rat is about five days. From all of this it may be seen that it is important to use an animal in which the details of its oestrus cycle have been worked out. Long and Evans⁴ have done so for the rat.

Allen and Doisy next made tests with centrifuged liquor and Berkefeldt filtrate. Positive results were obtained with both. The indication would, therefore, be that the hormone is extracellular and present in the liquor folliculi. Extracts were now made with 95% alcohol, thus to free the liquor of its proteins, and with this activity was even more marked.

Since this work, Doisy, Ralls, Allen, Johnston, Francis, Robertson, Colgate, Kountz and Gibson^{5,6} of the Laboratories of Biological Chemistry of Washington, of the St. Louis University School of Medicine, St. Louis, of the Department of Surgery of Washington University School of Medicine, St. Louis, and of the Department of Anatomy, University of Missouri, Columbia, have in the last number of the *Journal of Biological Chemistry* and that of

the *American Journal of Anatomy* presented data of their attempts to separate the active principle. The liquor was mixed with alcohol, filtered and evaporated, the residue was suspended in water and when some of this was injected into ovariectomized rats oestrus was produced. The next step was to remove the lipoids of the residue with ether and that which was left produced no effect, whereas the ethereal solution was active.

Tests were then carried out to show that the action was not due to cholesterol for, when this substance is removed the preparations remain active.

Photographs of the genital tracts of rabbits are shown from which it may be seen that 4 mg. had some effect and 8 mg. produced a pronounced enlargement. Provisionally a rat unit is the quantity of material necessary to induce oestrus as judged by the smear method in an ovariectomized sexually mature rat, weighing 140 + 20 gm. and three injections are made at intervals of four hours.

The minute details of their methods of preparation of the hormone from the liquor folliculi are given and one is impressed with the painstaking care displayed. Repeated leachings with alcohol and acetone are carried out prior to the production of the centrifuged ethereal solution, in which form it is kept as a stock supply, and from which aliquot portions are evaporated and the residue dissolved in purified corn oil (mazola) for injections. Whole ovaries may be used but they are found to be too bulky.

Hydrolysis, by acids and bases has been attempted but this seems to destroy some of the hormone. They are continuing this study with mild hydrolysis.

Their findings led them to believe that the concentration of hormone increases as the follicles mature; that the liquor folliculi is not species specific; that it causes premature induction of puberty; that repeated injections of this hormone will produce continuous oestrus; which is likened to the symptoms existing when the ovaries are cystic; that this follicular, active material is the principal female sex hormone; and that there is no reason for the opinion that the corpus luteum exerts an inhibitory action on oestrus. Administered by mouth the liquor folliculi has no effect. This points to the uselessness of commercial prepara-

tions of the ovary, which they have tested carefully and found negative without exception.

In one set of experiments they show that the concentration of the active material is greater in the liquor than in the whole ovary; this tends to indicate that most of the hormone is in the liquor and since it is impossible to remove all of the liquor by aspiration active preparations from "shucked" ovaries are not surprising. They have failed to make any extracts from whole ovaries approaching in purity those made from the liquor, the time spent in aspiration is therefore well worth while.

Concerning the distribution of the substance or substances producing "heat" manifold tissues were examined and it was found that the only one, besides the ovary, possessing this hormone was that of the placenta, the biological significance of which they propose to discuss in another communication. It is worthy of special mention that all of their attempts to obtain this hormone from the corpora lutea have failed.

The properties of this partially purified material are: that it is soluble in ether, chloroform,

petroleum ether (B.p. 40-60), alcohol (95%) and acetone; it is insoluble in water; it is free from cholesterol; it forms colloidal solution in water; it is thermostable; it is fairly resistant to mild hydrolysis with dilute acids and alkalis; and it is not decomposed by digestion with pancreas hash. Fairly pure preparations are soluble in pure corn oil (20 or more rat units per cc.). However, this oil causes in time granulomas and it is therefore desirable to obtain a more suitable menstrum.

In conclusion it would seem that we are on the eve of having a drug at once a boon in the hands of the conscientious, and a curse with profligacy and panderism.

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Insulin and the Nature of Diabetes Mellitus

—Although the discovery of insulin has carried us nearer a solution of the problem of defective carbohydrate metabolism, P. J. Cambridge, London, England, reminds us that there remains too much uncertainty regarding the exact relation of the pancreas to sugar metabolism to permit of a precise definition of diabetes which will be universally acceptable. The evidence at present available suggests that clinical diabetes is not a disease of constant etiology or pathology, but is more probably a symptom complex originating in various ways, all of which, however, eventually give rise to a progressive deficiency of the internal secretions of the pancreas if the primary cause is not removed or controlled. The relative or absolute deficiency that appears to exist in most cases of hyperglycemia when they come under observation, and the specific antiglycogenolytic function of one of the pancreatic hormones, ex-

plain why the administration of insulin has been found to have immediate beneficial effects in all cases of diabetes; but it is clear that unless this deficiency is mainly functional, and is not dependent on extrapancreatic causes, no lasting improvement will follow its use. If the treatment of diabetes is to be radical and not merely palliative, the exact conditions obtaining in each case must be determined, and appropriate measures must be taken to deal with them. In many instances in which insulin injections would otherwise have had to be continued most probably for the remainder of the patient's existence, they have been discontinued, or their use has been altogether avoided, when the primary cause of the defects of carbohydrate metabolism has been discovered and successfully treated.—*Jour. Am. Med. Ass.*, Nov. 1, 1924.

LOW SYSTOLIC BLOOD PRESSURE*

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IT is a matter for surprise that so little attention has been directed towards the clinical occurrence of low blood pressure. One finds the literature almost cumbered with reference to conditions in which the systolic blood pressure is increased and the subject discussed from every angle, yet the opposite side of the picture receives very scant notice. It has been the object of the writer to bring together whatever scattered information the literature yields in a brief résumé of the subject, more especially from the point of view of the basic physiological principles involved. A possible explanation for this seeming lack of interest is the fact that high blood pressure with its vascular and renal pathological sequelae is responsible for much fatality, whereas conditions associated with low pressure bear few such unhappy possibilities. Nevertheless there are several reasons why the subject should receive greater attention than it does, chief among them being the doubt, that should always present itself when we meet with this sign, whether there may not be some underlying pathological condition requiring our serious attention. Moreover, such cases frequently suffer from symptoms directly associated with the lowered level of their systolic pressure, and our therapeutic efforts may be required for the relief of these symptoms.

In discussing conditions involving levels of blood pressure, it is first necessary to arrive at a conclusion as to what figures it is intended to adopt as marking off such levels. This must necessarily be arbitrary, and while such a figure is set it must be understood to be merely a figure, subject to the limitations to which any mathematical formula must be subject when applied to human physiology. Most clinicians will not quarrel with 110 mm. Hg. as representing the point at which it may be said that the systolic pressure is low. Once more the fact that this is an arbitrary figure must be insisted on,

and mental reservations used in applying it to particular cases. The influence of age will immediately suggest itself as a modifying factor, and other perfectly obvious modifying influences will be apparent. It is also to be understood that this figure represents a more or less fixed average for the individual being studied, and not a point that is only occasionally reached.

O'Hare¹ has pointed out, and every close observer will have noticed, that the systolic blood pressure is often subject to variations of as much as 20 mm. in a few minutes, and therefore an average of several readings at a few minutes interval is often desirable to determine something like the true level at which the pressure stands. Furthermore, the remarks that follow are intended to apply to ambulant patients, and not to the acutely ill, although some reference to such cases may be made in passing. A brief reference to the physiology of blood pressure will perhaps be in order. The factors involved are four-fold: (1) The *vis a tergo* furnished by the heart; (2) the condition of the blood vessels; (3) the peripheral resistance to the blood stream (determined almost wholly by the vasomotor nervous system); (4) the volume and physical characters of the blood itself. A direct approach to the problem by way of a classification such as this, while theoretically sound is, in practise a little disappointing, chiefly due to the fact that the influencing factors are multiple instead of single, and indirect rather than direct, nevertheless it is well for the sake of clearness to bear such a skeleton classification in mind.

(1) *The myocardium*.—The part played by the myocardium in the production of low blood pressure should be easy to predict and describe, forming as this structure does the genesis of the circulation. As a matter of fact the reverse is true, and just what relation exists between the integrity of the heart muscle and the pressure at a given moment may not be easy to determine. Thus we find a heart obviously badly damaged, as evidenced by a dropsical, dyspnoeic

*Read before Section of Medicine, Academy of Medicine, Toronto, Oct. 14, 1924.

patient, still maintaining a systolic pressure in excess of the normal, and doing so up to a very short time before death. On the other hand, we may see a patient whose heart muscle meets all the requirements of every day life without a sign of insufficiency with a systolic blood pressure of 100 mm. Hg. or below. So that to say that a weak heart muscle is an important factor in the production of low blood pressure is far from the truth.

Some figures collected by Roberts² in this connection are interesting. Of a series of five hundred cases reviewed by him, 347 had no cardiac abnormality and 153 showed evidence of some cardiac disease. Of the 347 cases with healthy hearts, 47 per cent showed hypotension, while of the 153 with diseased hearts only 26 per cent had hypotension. While these striking figures are capable of various interpretations, they at least indicate that diseased heart muscle is a relatively negligible factor in the production of low blood pressure. The explanation of this apparent anomaly is perhaps furnished by Starling's³ work showing that where a heart is failing under the load of a high blood pressure reflex vasoconstriction takes place, diminishing the vascular bed in proportion to the lessened output; this at the same time serves to maintain the blood pressure at the existing level.

One interesting observation made by Dock of St. Louis is that cases of myocardial disease showing a low systolic pressure usually do not have a corresponding depression of the diastolic figure; in fact this is often elevated.

(2) *The conducting system of blood vessels.*—The physical state of the conducting vascular system plays little part in the production or maintenance of hypotension. It is probably limited to the effect which may reasonably be produced by flaccid and toneless muscular fibres forming the walls of blood vessels, subsequent to the toxic influence of acute infection, and this must only be of a transient nature. The only other physical circumstance which needs to be mentioned is the rigidity due to the changes associated with atheroma. The resultant of these changes is certainly not towards a marked lowering of the systolic figure; whether there is a constantly produced hypertension or not need not concern us here. It may be remarked, however, that a low blood pressure is not inconsistent with a marked degree of rigidity of the

peripheral arteries. McCrae⁴ is of the opinion that increase of the systolic pressure is the exception rather than the rule in uncomplicated arteriosclerosis.

(3) *The peripheral resistance to the blood stream.*—This is undoubtedly the most important single factor concerned in the maintenance of the blood pressure at any given level, and the physiology of the peripheral resistance will be briefly reviewed. Opposition to the passage of blood is furnished normally by a reduction of the total cross section area of the blood vessels. Provided the *vis a tergo* is correspondingly increased, (which it practically always is), there results an increase in the systolic pressure. The exceptions to this rule are formed by cases in which the myocardium is failing, and even in such cases, as shown before, the systolic pressure will not fall to any marked extent, and the diastolic pressure perhaps not at all.

This peripheral constriction is effected through the agency of the vasomotor nervous system, and therefore is largely subject to the ebb and flow of vasomotor nervous impulses. Applying these physiological facts to the hypotensive condition, it will be readily appreciated that a vasomotor system that is sending less than the proper number of impulses to the walls of the peripheral blood vessels to maintain them in a state of sufficient tone, will give rise to a consistently low systolic pressure, and indeed it is a matter for wonder that the peripheral vascular tone is maintained with so little variation as we find to be the case in health, subject as it is in its normal physiological routine to so many and such various stimuli.

Working in close conjunction with the vasomotor nervous system is the system of endocrine organs. The physiology of this complex system of biochemical organs is still far from being understood and our knowledge is very inexact, nevertheless it has been clearly shown that the endocrine organs exert a powerful effect upon the vasomotor nervous system, either by way of a pressor or depressor action on its function. The evidence to support this rests very largely upon clinical observation but in at least one of the organs, the adrenal, the morphological picture of one portion of the gland has been shown to be identical with the sympathetic cells of the vegetative nervous system. In the general derangement that the organic systems of the body

suffer as a result of chronic infection it is extremely probable that the endocrine organs suffer a degree of dysfunction that would add to any already existent in the vasomotor system, hence the importance of considering the endocrine organs in a study of this subject. A classical example in illustration of the point is Addison's disease, in which the suprarenal glands are the subjects of pathological changes. Quite apart from gross organic changes of such a nature, however, there is a large group of cases characterized by functional abnormalities of the endocrine organs, and it is cases in this group that often exhibit a habitually low blood pressure.

(4) *The volume and the physical and chemical characters of the blood.*—The viscosity of the blood has been studied with regard to its effect upon blood pressure but no reliable conclusion reached. Arguments have been brought forward to support the conclusion that the systolic pressure is increased with an increase in viscosity and apparently equally valid arguments to the contrary, so that one is probably not far from the truth in supposing that there is little effect produced on the blood pressure level by changes in viscosity. With regard to the volume of the blood, however, we are faced with a far more important factor, and one which has received a great deal of attention since 1914. In referring to the volume one must bear clearly in mind that statements in regard to it may be either absolute or relative. The absolute volume of the blood is one of the determining factors of lowered blood pressure in conditions of shock following haemorrhage or in conditions in which there is rapid loss of body fluids. This is an acute state and out of the scope of this paper to discuss. More important is the condition of relative diminution of blood volume.

It must be realized that measurement of the systolic blood pressure only means estimation of the pressure exerted by a given volume of blood within the arterial system bounded by the left ventricle of the heart during systole and the arterioles. While there may be no absolute diminution of blood volume in the whole body at a given time, there may be a great diminution in the circuit defined, and this is what I have described as the relative blood loss.

Researches on the capillary circulation, notably that of Cannon⁵, Dale and his collaborators⁶,

and more recently that of Krogh⁷, have shown that far from being the passive agency for tissue oxidation they were long supposed to be, the capillaries are, as Dale says, "an actively contractile part of the vascular system, having an intrinsic tone which can be modified either by nervous or chemical influences."

This conception of capillary physiology seems destined to alter our views materially on points concerned with relative blood volume and blood pressure. There is much that points to the conclusion that only a comparatively small proportion of the total area of the capillary bed normally functions as a blood-channel at any given amount. The importance of this is manifest when we consider the capillaries as a potential reservoir for blood withdrawn from the arterial circulation and as a cause by their dilatation of low blood pressure. The possibility of such a concentration has been well shown by Dale and Laidlaw⁸ in their studies on histamine shock in the cat. These observers found that after the injection of histamine the systolic blood pressure fell to an astonishingly low figure. Direct examination showed that the chambers of the heart and great vessels were almost empty of blood, although the heart's action was regular and forcible; a similar empty condition was present in all down to the smaller macroscopic vessels. The capillary areas, however, were found to be heavily congested everywhere and it was easily demonstrated that the great bulk of the missing blood was contained in such areas.

The established fact of the selective action of certain substances on the capillary walls leads us to an enquiry as to the effect of toxic metabolites in the blood in chronic affections. The possible presence of toxic substances of a complex nature in the blood stream in disease has long been surmised but no concrete conclusions have been reached. The experimental method of approach has been to inject such toxic substances into the circulation and note the results. This has been referred to in the case of histamine and the results thereof discussed. Other significant work has been done with guanidine; this latter substance has been found to cause a prolonged and marked rise in blood pressure⁹. The point of action of guanidine has not yet been determined. These experiments are referred to in order to point out how important may be the action of metabolites such as these on blood pres-

sure levels when derangement of metabolism permits their presence in the circulation for long periods of time. Much convincing experimental work must be done before any positive statements can be made, nevertheless the significance of such work is great, and it is suggested that variations in the capillary circulation form a most important factor in alterations of systolic blood pressure. Another manner in which the relative blood volume may be reduced is by a collection of blood into locally dilated vessels, such as the large splanchnic system, the so-called "splanchnic pool." Owing to the physiological necessity of great variation in the blood supply of the splanchnic system at different stages of the digestive cycle, the sympathetic system is called upon to exercise a very close control over the local blood supply, consequently it is not unreasonable to suppose that loss of tone in the sympathetic nervous system will result in relaxation of the walls of the splanchnic blood vessels to a greater or less extent, causing a great increase in the volume of blood in this region. This phenomenon until recently was assessed at a greater value from an etiological standpoint than it now is, nevertheless it still

has a place in the causation of low blood pressure.

Conclusions

In summing up, the following conclusions seem warranted:

- (1) The factors involved in the production of low blood pressure are multiple.
- (2) The greatest degree of dysfunction seems to be in the nervous system and the capillary circulation.
- (3) The actual state of the heart muscle is an almost negligible factor.
- (4) The presence of toxic metabolites in the circulation in many cases seems to be at least a great probability.

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Calcium and Parathyroid Glands in Relation to Hyperesthetic Rhinitis—There recently have been advocated some new conceptions regarding the etiology and treatment of so-called vasomotor rhinitis. Much emphasis has been placed on the rôle of the parathyroid glands in this disease as well as on the disturbances in calcium metabolism which are said to take place concurrently. A brief summary of the current ideas concerning normal function of the parathyroid glands, their rôle in disease and their therapeutic value is given by Robert Sonnenschein and Samuel J. Pearlman, Chicago. Special attention is given to so-called hyperesthetic rhinitis or vasomotor rhinitis which has increased in incidence in the past few years. So far as the pathology is concerned, one usually sees in this class of patients a pale, edematous, boggy, water logged nasal mucous membrane. Often the middle turbinates appear as though fluid is about to exude from them. As a rule the patients give a history of very fre-

quent so-called "head colds" (sometimes as often as two or three times a week), accompanied by persistent sneezing and the outpouring of a large amount of thin serous secretion. The exact causation of this condition has as yet not been definitely or completely determined. Latterly, much emphasis has been placed on the deficiency of the calcium content of the blood as the etiologic factor in this condition. The authors have used calcium chlorid solution not only locally in the nose, but have employed it or a solution of calcium chlorid ureas (afenil) intravenously. By mouth they have often given calcium lactate in 5 grain (0.3 gm.) doses together with from one-quarter to one-half grain (0.016 to 0.03 gm.) of thyroid three or four times a day. Trying all these measures they have at times had excellent results and at other times very poor ones. The calcium preparations, however, seemed to give the greatest relief and for the longest period of time.—*Jour. Am. Med. Assn.*, Dec. 20, 1924.

SOME RECENT RESEARCHES ON IODIDE AND BROMIDE ERUPTIONS*

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AS early as 1878, Adamkiewicz demonstrated the presence of iodide in body fluids following its ingestion and he also stated that he had found iodine in the pus of an iodide pustule. It was considered at that time that such eruptions were due to free iodine or bromine liberated in and about the appendages of the skin with which it came into contact. On the other hand, Tilbury Fox, in 1885, pointed out that this could not be correct, because histologically these lesions were not in any way derived from nor associated with either sebaceous or sweat glands. Laudenheimer, in 1897, first showed that, in regard to bromide, an accumulation occurred in the tissues following ingestion and gradually replaced the chlorides, this being based on the fact that, with the taking of bromides, a marked increase of chlorides at once appeared in the urine and that at the same time bromides were excreted in much smaller quantities than were taken. Nencki and Simanowski showed that, experimentally, bromide might take the place of chlorine in the gastric juice. Laudenheimer believed that the symptoms of brominism, i.e., stupor, pallor, and psychic disturbance, were due to chlorine deficiency or chlorine hunger.

Von Wyss, who, in 1906, showed that the circulating blood, chiefly the serum, contained the bulk of the stored up bromide, held the view that the skin manifestations were due to a liberation of free iodine or bromine in the skin, giving rise to irritation and secondarily followed by the invasion of bacteria. But Pasini, in the same year, showed that free bromine could not possibly be present in the pus of bromide lesions, because the high degree of acidity required to liberate free bromine could not normally exist in the body. Pasini explained these eruptions as due to the chemotactic action of the drug as iodide or bromide in the tissues.

As a result of their investigations, in an attempt to define more clearly the mechanism of the production of these lesions, Wile and his associates† state (1) both iodide and bromide may be readily demonstrated in the blood, urine, sweat, and saliva in a person taking these drugs, thus corroborating the observations of previous workers; (2) they have been unable to find iodide or bromide in the pus of local lesions, although in persons taking iodide or bromide the drug may be easily demonstrated in the fluid of artificially formed blisters; further, it was noted that the tendency to pustulation in a person taking iodide bears no relation to the amount of drug taken; (3) the ingestion of bromide causes a marked increase in the excretion of chlorides in the urine and this increase lasts for a time after the bromide intake is stopped. On the other hand, the ingestion of iodide causes no disturbance in the chloride excretion, this being due to the fact that iodide is readily excreted by the kidneys; (4) that staphylococci are present in the pus lesions of iododerma and bromoderma; (5) that these cutaneous phenomena are not dependent on an allergic state of the skin. Subcutaneous and cutaneous injections of bromide and iodide solutions in varying strengths yielded negative results.

An attempt was made to produce cutaneous bromide eruptions in conditions of acidosis. It had been suggested that the pustular lesions of a bromoderma might have resulted from an altered alkaline content of the blood. Bromide in small doses was given to patients presenting mild and severe degrees of acidosis and in no case did lesions of bromoderma develop.

That the injection of a foreign protein might result in a bromide-like reaction in the presence of bromide in the blood was shown by the fact that when typhoid vaccine was injected under the skin of a patient taking bromide, pustular

*Read at a meeting of the Osler Reporting Society, October, 1924.

†*Arch. of Dermatol. and Syphilis*, Sept., 1923.

lesions similar to pustular bromoderma developed.

With the knowledge that bromide ingested accumulates in the tissues and apparently displaces the chlorine ion, resulting in a reduction of the total chlorine content, it was considered that it might be possible to reverse this process and by the introduction of large amounts of sodium chloride intravenously, to set free the bromide which probably is loosely united to the proteins in the blood and tissues and thus cause its more rapid elimination. Of interest is the further report of three cases successfully treated in this way, the most striking and instructive of which is briefly as follows:

A woman, age forty, was admitted to hospital on account of a nodular bromoderma together with a mental condition suggestive of a toxic encephalitis. She had been taking bromides for the past ten years, and had greatly increased the amount taken prior to admission. The urine was normal and contained no bromide. She was given 500 cc. decinormal saline intravenously. She reacted severely and the next day the urine showed enormous quantities of albumen and many casts, and the test for bromide was strongly positive. During the next few days the acute condition of the kidneys subsided and in the course of the following month she was given, at intervals, smaller amounts of decinormal saline intravenously. Later examination of the urine showed large amounts of bromide and decreasing amounts of albumen and casts. It is recorded that the bromoderma and the mental condition made a steady improvement so that she was discharged in apparent

good health after one month in hospital. Bromides are apparently, not only excreted with difficulty, but are highly toxic to the kidney substance.

The authors conclude as a result of their studies:

(1) That the lesions, i.e., the pustules of iodide and of bromide eruptions are not sterile, but are probably secondarily invaded by pus cocci inasmuch as the erythematous, urticarial and purely bullous types cannot be associated with a bacterial cause.

(2) That after ingestion of iodide and bromide they are found in all body fluids but are not present in the pus of skin lesions.

(3) That sensitization tests are negative.

(4) That bromide apparently replaces chlorides in the body fluids, and is not readily eliminated by the kidneys, whereas iodide as such is readily excreted.

(5) The injection of a foreign protein in the presence of bromide in the blood may give rise to a bromide-like reaction.

(6) That the local phenomena of iododerma and bromoderma are not due to simple chemical changes nor to the invasion of bacteria; that the process is not yet clear, but would seem to be dependent on a complex biochemical reaction.

The injection of sodium chloride intravenously, apparently results in a displacement of the stored-up bromides and their consequent elimination by the kidneys, and from the results reported, although there are only a small number of cases, its use in cases of bromoderma would appear to be a useful advance in the therapy of this condition.

AMERICAN CONGRESS ON INTERNAL MEDICINE

We desire to call the attention of our readers to the meeting in Washington of the American Congress on Internal Medicine which takes place March 9th to 14th. Washington clinicians and investigators of attainment propose devoting the entire session to amphitheatre and group clinics, ward rounds, laboratory conferences, lectures, demonstrations of special apparatus and the exhibition of unusual scientific collections. Civilian and governmental services are united in the aim to make the week of much interest and value to all those who will be present. The advantages of the Congress are valuable to all graduates in medicine of good standing. The annual fee of the Congress is \$15.00 which includes subscription to the current volume of the *Annals of Clinical Medicine*.

Case Reports

A CASE OF DERMATITIS FACTITIA*

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The case here reported, while not adding anything new to our knowledge of feigned disease, demonstrates very clearly two features commonly met with in this form of malingering, features which almost invariably defeat the attempt at deception on the part of the patient. The first of these is seen in the history of the case, where a succession of fresh attacks or of exacerbations in the symptoms alternate with quiescence or even complete healing of the lesions, and these reappearances correspond with the opportunities the malingerer has from time to time of renewing the irritant. The second feature is the increasing severity of the lesions produced as the individual becomes emboldened by the success of his earlier attempts, until the result far surpasses anything that nature can accomplish in the most virulent forms of skin disease.

J. W., aged forty-eight years, male, Hebrew, was sent from the Workmen's Compensation Board at Winnipeg to the Dermatological Clinic of the Montreal General Hospital on July 19, 1924, and the following is a synopsis of the history furnished by the Board. The portions in quotation marks are *verbatim* notes from the report, those in parentheses my own comments thereon. In order to make clear my first point I have added in italics the patient's residence at the time the notes were made.

Mar. 20, 1923. *In hospital.* "Piece of timber fell across his right leg." Treatment: "Rest in bed, hot fomentations; x-ray negative."

April 5, 1923. *At home.* "Periostitis, inflammatory condition quite marked."

April 21, 1923. "Scalded his leg from hot fomentations. Complains of pain just below the ankle."

April 27, 1923. "Fit to resume employment, discharged to resume work on May 1st." (Note that no sign of ulceration of the skin had appeared, now five weeks after the accident. Is it not pos-

sible in the light of future events, to suppose that the accidental scalding of the skin with the further prolonged rest from work may have suggested the idea of malingering?)

May 10, 1923. "Laid off work on May 4th., on account of small ulcers forming on his leg. Leg swollen, red, and some skin ulcerating." (First attempt at prolonging his compensation award).

May 17, 1923. "Sloughing of small areas of skin over the injured part; x-ray negative."

June 13, 1923. "Sloughing and necrosis of different areas of skin; Wassermann three plus."

July 5, 1923. "Leg slowly healing. Complains of indefinite pains. Large ulcers practically healed. A few new ulcers forming of an hæmorrhagic nature. Leg seen by Dr. X., who would not give any definite diagnosis." (As the ulcers healed the man was forced to renew them to keep up the deception).

July 26, 1923. *In hospital.* "Wassermann negative."

Aug. 4, 1923. "Good condition, but leg still painful."

Aug. 16, 1923. "Leg just about healed. Up and around the hospital."

Sept. 7, 1923. *At home.* "Was discharged from hospital with the leg practically healed. The leg developed some hæmorrhagic spots when he was put on it." (The lesions healed while constantly under observation in hospital, but reappeared when he was at his own home again).

Sept. 12, 1923. "Seen by Dr. Y., diagnosis chronic dermatitis, discoloured patches with tiny crusted spots. I do not think there is any probability that he is artificially keeping up the irritation." (Note the *tiny* crusted spots).



*Read before a meeting of the Staff, Montreal General Hospital, November, 1924.

Oct. 8, 1923. "As one part of the leg cleans, another patch breaks down." (Having the opportunity, the patient for the fourth time reproduces evidence of disease).

Oct. 25, 1923. "Seen by Dr. Z., diagnosis of 'papulo necrotic tuberculide'." Suggests salvarsan intravenously and quartz light locally.

Sept. 13, 1923. *In hospital.* "Small individual slough of skin on the leg."

Nov. 30, 1923. "All scales off the leg but skin still discoloured."

Dec. 3, 1923. "To be discharged from the hospital, no skin lesion but complains of pain in the leg." (For the third time the ulcers heal entirely while the patient is under observation in hospital).

Jan. 18, 1924. *At home.* "Leg again in bad shape, inflamed from ankle to knee. Embolic spots and hæmorrhagic spots. Has also shifted to the leg now which was not affected before. Referred to Dr. Z. for treatment but to remain at his own home at his request though hospital treatment advised." (Here again the patient lost no time in getting again on the Compensation Board, and his reason for refusing hospital treatment is readily understood. Note that he found his plan of living at the country's expense so effectual that he extended his operations to the other leg, and, as we shall see later, ultimately produced lesions which so far exceeded nature that any doubt as to their character was impossible).

May 8, 1924. Seen by Dr. XX. Diagnosis of "Syphilitic infection, dermatitis, infiltration of the deeper layers of the skin of a fibroid character. Periostitis of all bones of the leg below the knee—more or less."

July 8, 1924. "Résumé of salvarsan treatment in the Winnipeg General Hospital. November and December, 1923, six intravenous injections. May and June, 1924, a second series, the last on June 10th. Quartz light given while in hospital, also while resident at home for two or three months from January 17, 1924. Since last salvarsan had deep therapy x-ray treatment."

July 19, 1924. Admitted to the Montreal General Hospital. Present condition of the skin as dictated to the house surgeon at the time. "Distributed irregularly over the skin of the right leg from three inches below the patella to the ankle are slightly raised black or grey-black crusts numbering about 120. On removing the crusts which are firmly adherent, a shallow ulcer is found underneath, in most cases dry but

occasionally a drop or two of pus is present. The lesions are all approximately of the same size, round or oval in shape, with fairly regular outlines, and measure from one quarter to one-half inch in diameter. There are half a dozen much smaller crusts, from a mere dot to a split pea in size, scattered over the site of the eruption. The skin between the lesions is of normal texture, thickness and colour."

General condition reported by Dr. Peters as negative except for a slight conjunctivitis and sluggish pupil in the right eye.

Nervous System. Report by Dr. Mackay. "Mentally is clear, rational, bright and shows no evidence of psychosis. Neurologically normal."

X-ray report by Dr. Wilkins. "X-ray examination of the right leg does not show the presence of injury or disease of bone."

Blood Wassermann taken on July 24th. was negative.

Diagnosis. Ulceration of the skin occurs commonly in but three diseases, carcinoma, syphilis and tuberculosis. There are many other dermatoses in which ulceration is also a factor but in the absence of their characteristic symptoms and because of their extreme rarity, it seems unnecessary to categorically exclude each one here.

Carcinoma shows no tendency to heal spontaneously, occurs in most cases as a single lesion, rarely as several individual lesions, and never in the numbers here present all confined to one small area of the body. Furthermore, the undermined margin of the carcinomatous ulcer is not seen in any of the lesions.

Syphilis, in the tertiary stage, does produce a number of small ulcers scattered over a considerable area of skin, but syphilis is a blood or lymph borne disease and as such produces a general inflammatory or granulomatous infiltration of the area involved with ulceration where necrosis has occurred. The absence of any sign of infiltration or even redness about the lesions and their number and uniformity serve to eliminate it.

For tuberculosis the same argument has equal force. The only form of ulcerative tuberculosis that might be considered is scrofuloderma, where one invariably sees an irregularly shaped ulcer with deeply undermined edges, due to the greater resistance of the skin than of the underlying tissues to the action of the tubercle bacillus. Here, also, the lesions are few in number.

This leaves us with trauma as the only possible explanation of the condition present, and as the patient denied all knowledge of this we are

forced to the conclusion that he is a malingerer. Had he contented himself with producing not more than a few lesions, the diagnosis, especially in the early stage, would have been extremely difficult; but, emboldened by his success, he very greatly overdid his applications to the skin and thus rendered detection a certainty. At the time the diagnosis was made on the above lines his previous history had not yet reached us, and one has only to read that history to get the strongest possible confirmation. The alternative rapid development and slow healing is utterly at variance with both syphilis and tuberculosis.

The subsequent history of the case was most interesting. At first he refused absolutely to have a small piece of tissue removed for biological examination, but on pressure being brought to bear by the Compensation Board, he consented and one of the ulcers was removed by Dr. Bazin on August 6th. Six days later the sutures were removed and the wound was found in good condition and healing well. For the next three days the dressings were found blood stained and the wound at the end of that time reopened. I then had a plaster of Paris dressing applied, and cut and hinged, so that it could be removed when necessary, but would prevent the patient from access to the wound. We had no further trouble with the healing, but the open wound had to granulate up and on September 6th., when all but the width of one quarter of an inch had healed, he was discharged. There were still one or two of the small lesions that had not completely cicatrized.

Report of Dr. Rhea on the tissue removed: "Chronic ulcer, no evidence to support tuberculosis or lues."

In considering what agent could have been used to produce the lesions, I was led to the suspicion that it might be carbolic acid in some form because of the fact that it produces the black crusts which were so prominent a feature in this case, and that, from its local anæsthetic effect, it is an application comparatively painless. Consequently on August 2nd. I applied, without the patient's knowledge, pure carbolic acid to a small area corresponding in size and shape to the lesions already present. Two days later the spot was whitish and somewhat translucent and small hæmorrhagic dots could be seen beneath it. Two days later again the test spot became brown, and several days after that black, and could not be distinguished from the original lesions except for the markings of an indelible pencil which I had used to define its situation.

CARCINOMA OF CÆCUM

ALFRED J. GRANT, M.D., F.A.C.S.

London, Ontario.

Patient, Male, age seventy-three.

Chief complaint: A lump in right groin with periodic cramp-like pains.

Present illness: Patient has been having pain in right lower abdomen and groin for the past eighteen months. A lump has been present for six or eight months.

Previous history: Had a fall forty-five years ago and injured right testicle which has been large ever since. Otherwise patient has always been healthy and never has had any serious illness.

Physical examination: A well-developed man in apparent health. Looks ten years younger than age given. Mouth and throat healthy; heart and lungs negative; abdomen, somewhat distended; a hard lump is felt in right lower quadrant extending into groin, slightly tender, and partly fixed. By invaginating scrotum with finger can feel the mass strike down upon external ring when patient coughs. By rectum can feel mass in right side by deep pressure.



X-ray examination: After a barium enema passed readily up into cæcum and enabled por-

tion of cæcum and mass (apparently fixed) to be seen. Plate shows that barium enema passed through ileo-cæcal valve into small intestine. Marked deformity of cæcum seen.

Diagnosis: Carcinoma of cæcum.

Treatment: Patient was advised that he was on the verge of an obstruction; that the tumour mass could not be removed, but lateral anastomosis might be possible to prolong life and guard against colostomy.

Operation: Right rectus incision, large mass of carcinoma was seen involving cæcum and fixed to retroperitoneal tissue and psoas muscle. Last two feet of ileum dilated to twice normal size. Lateral anastomosis between ileum and transverse colon was made grasping ileum as far as possible from ileo-cæcal valve.

Note: Very smooth convalescence. Patient left hospital in eighteen days. No pain, good appetite and normal bowel movements.

CARCINOMA OF THE TRANSVERSE COLON WITH PARTIAL DESTRUCTION OF THE BOWEL WALL AND PERFORATION OF A BRANCH OF THE MIDCOLIC ARTERY

J. O. FRASER, M.D

From the Department of Pathology, the Montreal General Hospital

Male, age forty-three years. Admitted to the Montreal General Hospital into the service of Dr. Campbell Howard, November 8th., 1924.

Complaints: Passing of blood in stool; vomiting; weakness; persistent constipation; loss of weight; abdominal pain

His family and past histories were unimportant except for the fact that he had always suffered from constipation

Present illness: In the early part of June, 1924, he began to have pains in the epigastrium, which were "cramp-like and tearing in character." They did not tend to radiate and were temporarily relieved by camminatives. During the attacks of pain he often vomited and, once the vomitus was blood stained. Early in July he was free from pain. The pain, however, returned, and his constipation became more marked and laxatives which he had been accustomed to take became less and less effective.

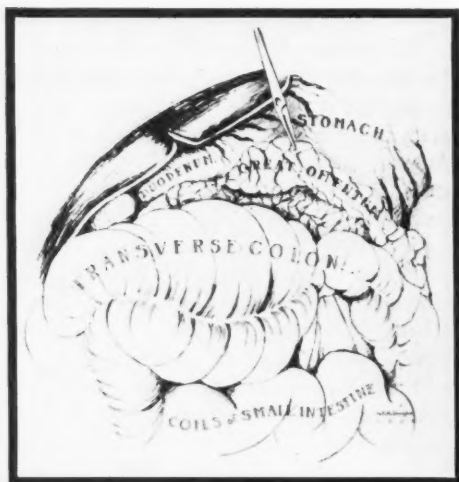
This constipation never alternated with diarrhoea. About the middle of July he first had pain in the "small of his back," which radiated upwards and around to the right loin. This came on when he either sat down or lay down. During August and September he did not feel as well as usual. He occasionally vomited, but rarely had any epigastric pain.

On November 8th, while at work, he suddenly collapsed; he became very pale, his hands and feet became cold and a profuse perspiration appeared on his forehead. He soon recovered consciousness and went to the toilet where he passed a large amount of fresh blood. He was allowed to rest comfortably for two hours, when he was admitted to the Montreal General Hospital (9.45 a.m., November 8th). At the time of admission he was in a condition of shock, and his condition was so critical that it was not felt that a complete examination was justified. He was put into bed with several hot water bottles. His respirations were rapid, his pulse running, weak, and thready. The heart sounds were distant and muffled. The abdomen was flat and somewhat resistant. He was given one-sixth grain of morphia with good results. By midday he had greatly improved and his pulse rate had dropped to 112. Suddenly, at 2 p.m. he again collapsed, dyspnoea was pronounced and he became very pale. The fingers and toes became numb, and his pulse could not be felt. There was profuse perspiration on his forehead. As soon as he had recovered somewhat he asked for the bedpan, but there was no movement. Within one half hour after this attack he again collapsed and died within a few minutes, five hours and forty-five minutes after admission to the hospital.

The clinical diagnosis of duodenal ulcer with hæmorrhage was made.

Summary of the Main Points of the Post Mortem

"The body is emaciated. The abdomen shows asymmetrical distension, being greatest in the right quadrant. There is no blood in the abdominal cavity and no evidence of acute peritonitis, nor of perforation of the gastro-intestinal tract. The intestines are distended, especially a portion of the large intestine. The great omentum is united by fibrous adhesions to the right side of the cæcum and ascending colon. There is no evidence that these adhesions have led to obstruction. The mesenteric lymph nodes are small and hard. When the great omentum is lifted up there is exposed a marked area of constriction of



Carcinoma of the transverse colon with ulceration into a branch of the midcolic artery followed by fatal hæmorrhage. Montreal General Hospital. A-24-215. Service of Dr. C. P. Howard.



Carcinoma of the transverse colon with ulceration into a branch of the midcolic artery. The colon has been lifted up and a probe passed into the vessel. Montreal General Hospital. A-24-215. Service of Dr. C. P. Howard.

the transverse colon. Distal to this constriction there is no dilatation of the colon, but proximal to it, the colon and cæcum are widely dilated. When the wall of the intestine is invaginated, the constricted area is found to barely admit the finger tip. Throughout a small area the postero-inferior surface of the transverse colon is quite firmly united to the mesentery of the small intestine. When the adhesions are broken down there is seen to be a carcinomatous lesion of the mesen-

tery, a defect in the wall of the large intestine communicating directly with the carcinomatous area in the mesentery, and a circular carcinoma of the transverse colon. The carcinomatous area in the mesentery has involved and led to perforation of a branch of the midcolic artery. At the post mortem the hole in the artery was closed by blood clot. The large intestine contained a large amount of fresh blood. The tumour in the intestine, has, by direct extension, involved the superficial portion of the pancreas adjacent to it. There are also metastases in the liver and in the lymph nodes of the gastro-hepatic omentum."

Histologically the tumour is an adeno-carcinoma.

Principal anatomical diagnosis.—Carcinoma of the transverse colon leading to partial obstruction. Direct extension of the carcinoma in the intestine with involvement of the mesentery. Carcinomatous perforation of the large intestine. Carcinomatous ulceration of a branch of the midcolic artery. Multiple carcinomatous metastases. Profuse hæmorrhage into the large intestine.

Remarks

Carcinoma of the large intestine is a comparatively common lesion and hæmorrhage from such lesions is not rare. It is, however, rare to have the carcinoma lead to destruction of the intestinal wall, a localized and walled off area of carcinoma in the mesentery, and still more uncommon to have a perforation of the midcolic artery which results in fatal hæmorrhage into the intestinal canal.

AN UNUSUAL UTERINE POLYP

J. STEWART HENRY, M.D.

*From the Department of Pathology,
The Montreal General Hospital*

Mrs. M., age fifty-nine years, was admitted to the Montreal General Hospital, to the service of Dr. H. M. Little, on September 21st, 1924, complaining of swelling of the lower abdomen and dragging down pains.

The patient was born in England, but has lived in Canada for the past thirty-two years. Her personal and family histories contain nothing of note. Up to the onset of her present condition, fourteen years ago, her sexual history had been uneventful. The menses began at eleven, were

regular with moderate loss of blood and some dysmenorrhœa. She had five full term children, the last thirty years ago, and the labours and puerperia were normal. She has had no miscarriages.

The present condition commenced about fourteen years ago when she noticed a fulness of the lower abdomen associated with pain in the left groin. She states that after she first noticed the swelling of her abdomen, it increased gradually in size, and she began to have dragging down pains. The abdomen reached its greatest size about eleven years ago and then remained stationary for two years, until about three months before admission, when it began to enlarge once more and the dragging down pains increased in severity. From the onset of the abdominal enlargement, until the menopause, her menstrual flow was very profuse and accompanied by considerable pain. The flow would last ten or twelve days and she would have to remain in bed. The menopause occurred about seven years ago, and after that time she had no loss of blood until August 3rd, 1924, when she had a considerable hæmorrhage, which lasted only a short time. She lost no more blood until August 24th, when she began to have frequent small hæmorrhages, which have recurred at irregular intervals up to the date of admission. She has lost considerable weight and strength; there have been no urinary disturbances.

Condition on admission.—The patient is well developed and well nourished, and apparently of stated age. The skin and mucous membranes are rather pale, the lungs are healthy. The blood pressure is 184/94. The heart sounds are clear and regular.

There is marked fulness of the lower abdomen, which moves freely with respiration. It is soft throughout and there are no points of tenderness. A large globular mass, which is smooth, freely movable and painless, rises from the pelvis to the level of the umbilicus. On pelvic examination, blood is seen escaping *per vaginam*. The cervix is soft and dilated and through the external os there protrudes a large submucous polyp which shows evidence of being infected.

The body of the uterus is enlarged, firm and irregular, but moves freely. The appendages are not palpable. In the routine urine analysis sugar was found. On the same day her blood sugar was found to be 0.2%.

At operation on September 23rd, the pelvic findings were confirmed and the surgeon, know-

ing that he was dealing with an infected polyp and that the uterus and polyp must be removed transperitoneally, packed the uterus and vagina with iodoform gauze before he opened the abdomen. On opening the abdomen, by a midline incision below the umbilicus, a large fibroid of the uterus presented. The uterus was free from adhesions and the appendages were attenuated so that it was easy to bring the uterus out at the abdominal wound. Complete hysterectomy was performed, and the abdomen was closed, without drainage.



Benign leiomyomata of the uterus. Multiple Polypi of the uterus with multiple abscesses of the largest polyp and of the mucous membrane of the uterus. Montreal General Hospital, No. 4401/24. 8-24-952. Service of Dr. H. M. Little.

After the patient's return to the ward, she was given ten units of insulin. Her blood sugar was brought down to 0.181% by dietary measures and her urine became sugar free. She made an uneventful recovery and was discharged on October 4th, 1924.

Pathological report.—Specimen consists of a uterus measuring 16.8 by 15 x 10 cms., pale reddish yellow in colour, a portion of right broad ligament with Fallopian tube and ovary, is attached to it. The right side of the uterus is greatly enlarged by a mural fibroid tumour, which is firm throughout. The cut surface of the tumour is pale yellowish white and bulges on sec-

tion. The growth is well localized and in its centre are a number of dilated blood vessels. The left broad ligament, Fallopian tube, and round ligament have been divided close to the uterus. In the fundus of the uterus, on the left side, is another large mural fibroid, which bulges out the uterine wall. The uterus has been amputated just above the cervix and from its cavity a polyp 4.3 cms. in diameter, projects for a distance of 7.5 cms. On opening the uterus its cavity is practically filled by this large polyp, which is attached by a narrow pedicle just below the opening of the right tube. The polyp shows upon its surface a number of greenish yellow abscesses, varying in diameter from 0.15 to 1.25 cms. and filled with greenish yellow pus. The cut surface of the polyp is greyish white in colour and contains numerous cystic cavities filled with gelatinous material and separated by strands of white tissue. Near the origin of the large polyp are several smaller ones which present a similar structure but show no evidence of infection. These are flattened out by the pressure of the large polyp just described. On the right, anterior, and left walls of the uterine cavity is a sessile tumour, containing numerous cysts measuring up to 0.6 cms. in diameter and filled with translucent vitreous material. The endometrium is pale reddish brown, oedematous, and in the anterior wall near the fundus, shows several small abscesses, similar to those found in the large polyp.

Pathological diagnosis—Multiple leiomyomata of the uterus, non-malignant. Multiple uterine polypi of which the largest shows numerous abscesses. Abscesses of endometrium.

Bacteriological examination of pus from abscesses, shows a mixed infection, *B. coli* predominating.

Remarks

Uterine polypi are not uncommon but it is relatively rare to find one that is attached at the fundus and protrudes from the external os. The fact that it did protrude from the os made infection of it comparatively easy. The superficial abscesses in the mucosa of the uterus are evidently secondary to those of the large polyp. The case also illustrates that a uterus that contains an infected polyp and endometrium, may, if proper precautions be taken, be removed transperitoneally, without infection of the peritoneal cavity.

A CASE OF PURPURA HÆMORRHAGICA: DEATH DUE TO CEREBRAL HÆMORRHAGE

F. D. ACKMAN, M.D.

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This patient, a Hebrew girl, aged fifteen, first came to the hospital on September 1st., 1923, complaining of diarrhœa with fresh blood in the motions, bleeding from the gums, loss of colour, and weakness. The history given at that time was that she had enjoyed the best of health until the early part of March of the same year, when the first manifestations of her condition made themselves known. It was then that she began to notice that black and blue spots developed on her body and extremities after very slight trauma and frequently without any apparent cause. Shortly after this her gums began to bleed occasionally without any apparent cause. These two symptoms persisted throughout the spring and early summer without any appreciable change and were ignored for the most part except for the occasional inconvenience they caused her. She did, however, begin to notice in addition that she was somewhat more anæmic than usual: during the first week of August she developed a severe diarrhœa amounting to five or six loose watery bowel movements daily. She became very weak, and took to bed about the middle of that month, when for the first time blood was noticed in her stools. At the same time the bleeding from her gums became aggravated and she frequently vomited material containing blood clots. She had had amenorrhœa for three months previous to entering hospital. Her home surroundings were quite satisfactory as far as diet was concerned and her family history unimportant.

On admission, her temperature was 100°, pulse 120, respirations 22. Physical examination showed her to be well nourished and developed. Her colour was of a somewhat waxy pallor. Her gums were oozing blood at the tooth margins, but the teeth were in good condition. There were one or two petechial spots on the mucosa of the mouth. Her abdomen was not tender, and neither spleen nor liver could be palpated. There was a soft systolic murmur at the cardiac apex but no enlargement of cardiac dullness. The thyroid was slightly enlarged but not nodular. The fundi showed bilateral retinal

haemorrhages, but no swelling of the optic discs. Her uterus by rectal examination was somewhat more bulky than usual. She had severe diarrhoea with loose watery stools which constantly contained microscopic, and frequently, macroscopic blood. Her urine contained nothing beyond a trace of albumin. Examination of her blood on admission gave the following findings:—Red blood cells, 1,800,000; white cells, 4,800; hæmoglobin, 25%; the blood platelets were greatly decreased, being about 30,000, and later falling to 14,000; a differential count showed 52% neutrophils, 1% eosinophils, 1% basophils, 1% myelocytes, 43% lymphocytes, and 2% mononuclears; there was marked anisocytosis, considerable poikilocytosis and polychromatophilia, while one or two normoblasts were observed. To exclude other possibilities a blood culture was taken and found to be negative; the Widal was negative and an x-ray of the chest revealed no signs of tuberculosis. The patient's course in the hospital was marked by frequent exacerbations in the hæmorrhages from one point or another, during which she continued to run a rather continuous type of fever though with gradual improvement. Toward the latter part of October, following a series of blood transfusions, hæmorrhage practically ceased, the diarrhoea cleared up and her temperature fell to approximately normal. Her condition continued to improve and she was allowed to go home on November 11th. The only obvious vestige of her trouble being a rapid pulse. During her stay in the hospital, she had frequently shown a tendency to petechial hæmorrhages and particularly after transfusion. Following her discharge she continued to make satisfactory progress although very dark stools were noted on one or two occasions. She was admitted again on December 6th. for blood transfusion. Prior to this time she had had amenorrhœa for over six months, but a day or so after the transfusion she developed a severe menorrhagia which lasted a week. She was then again allowed out for the holiday season with the following blood findings:—red cells, 3,120,000; white cells, 7,800; hæmoglobin 75%; blood platelets, 70,000.

Shortly after her return home she had a severe relapse, with a recurrence of all her original symptoms and she was readmitted to the hospital on January 15th., 1924. Her physical condition was essentially the same as previously noted, but there was more profuse bleeding now from the gums, bowel, and into the tissues. As

a result of having swallowed blood there was a good deal of vomiting, but it was noted that when she did keep her food down there was less bleeding. Her stay in hospital lasting for ten weeks showed a repetition of her former course. She received three blood transfusions, but in spite of these the red cell count fell until on discharge in March it was only 1,600,000; white cells, 5,700 and hæmoglobin 25%, the blood platelets being only about 10,000.

She had another relapse in April and again spent over a month in hospital, being discharged on May 19th. with some improvement following transfusion.

She remained comparatively well until the middle of June when she developed severe abdominal pain and was readmitted to hospital on June 18th. with essentially the same symptoms but was now much weaker and considerably emaciated. Her condition remained about the same as on previous admission except for increased weakness, and more rapid pulse than previously recorded. She received two blood transfusions, the last being on July 4th., following this she showed some improvement, but there was no definite change in the thrombopænia or blood count. On the morning of July 9th. while at breakfast she suddenly became semiconscious and markedly restless. She rapidly lapsed into complete unconsciousness, with stertorous breathing and involuntary micturition and defæcation. Examination showed a complete right-sided hemiplegia with all the evidences of an upper motor neurone lesion which rapidly spread to the left side and finally involved her whole body in less than fifteen minutes. With this paralysis there was seen the involuntary movements of her upper extremities which are significant of an involvement of the pons, *i.e.*, extension and internal rotation of the arms. Embarrassment of her vital centres developed rapidly and she died three hours after the onset. Unfortunately an autopsy was not obtainable.

HYPERPLASIA OF THE THYROID IN AN INFANT

H. G. GRIEVE, M.D.

Senior Interne, Children's Hospital, Winnipeg

The presence of hyperplasia of the thyroid in children is comparatively uncommon. In the Mayo Clinic, Lewis has reported five cases under

the age of ten years. The youngest of these was four years old, and all were girls. Buschin collected a series of fifteen cases under the age of ten years. In none of the cases recorded has the patient been as young as the case which is the subject of this report.

This patient was a female infant fifteen months of age, born in Canada, of Ruthenian parents. It is of interest to note that there was a large adenoma of the thyroid in the mother of the patient. The child was born at full term. It was breast fed entirely for nine months and then breast fed with a supplementary feeding of whole milk. The infant had always been well, gaining steadily.

Between the second and third month the mother noticed a small nodule, a little larger than a good sized pea, on the left side of the child's neck. This nodule has gradually and steadily increased in size during the past twelve months, until, on admission to the Children's Hospital, it was the size of a golf ball. At no time has the mass caused the infant any discomfort.

Examination showed this nodule to be situated three quarters of an inch below and midway between the left mandibular angle and the symphysis menti. In shape this mass was almost perfectly globular. It was slightly moveable over the underlying tissue and free from the more superficial structures. The anterior border of the left sterno-mastoid crossed the posterior portion of the nodule. Its consistency was likened to that of a rather tense cyst.

At operation this nodule was found to be attached by a comparatively small pedicle to the upper portion of the left lobe of the thyroid gland. Its surface was covered by numerous large veins. The nodule was easily shelled out and removed. The post operative course was uneventful, the patient being taken home on the tenth day.

Examination of the specimen by Professor William Boyd, showed the cut surface to be of a yellowish colour and to have the dense opaque appearance which is commonly found in cases of thyroid hyperplasia. Microscopical examinations confirmed the findings in the gross specimen. The acinar spaces were, in many cases, almost obliterated by buds of epithelial cells projecting inwards. The cells lining the acini were of the high columnar type with their nuclei situated near the base of the cells. These acini contained a very small amount of colloid material and were supported by a vascular connective tissue. The

general microscopical appearance was that of active glandular tissue.

The noteworthy features of this case are:

1. The presence of hyperplasia in an infant, fifteen months of age.
2. The absence of any evident clinical signs of hyperthyroidism.
3. The occurrence of a large adenoma in the infant's mother.

REFERENCE

LEWIS, W. H., Mayo Clinic, 1914, 461.

GENERAL OEDEMA OF FŒTUS

W. E. TEW, M.D.

Reported before the Harvey Society of London, Ont.

General œdema of the fœtus is an interesting and rather rare condition. The late J. W. Ballantyne, of Edinburgh, reported his detailed findings in five cases of this condition. He considered that there were two types dependent on two essentially different causes. The first type is obstructive in character and due to a congenital absence of the thoracic duct. The second was of a cachectic character and due to a series of factors, which included a cachectic state of the mother, a blood disease of the fœtus itself, with a morbid condition of the placenta intervening.

The specimen shown belongs to the obstructive type. Briefly the history and findings of the case were as follows:

Patient, Mrs. E. H., age thirty two. Seven previous children. Patient fairly well developed and nourished. Miscarriage took place at the end of the seventh month of gestation period. Four previous children were living and healthy. There was a history of a previous miscarriage at the third month. The mother's Wassermann reaction was negative.

The fœtus stillborn measured 33.5 cm. Marked general œdema gave the fœtus a jelly-like appearance; there was considerable subcutaneous fat which was of a greyish colour. The abdominal cavity contained about 300 c.c. of thin yellowish fluid. The intestines were very small and white, and contained no meconium in any part of the intestinal tract. The kidneys and adrenals appeared normal in size, but very pale on section. Each lung floated in free fluid in its pleural cavity. The pericardium contained 2 c.c. of yellowish fluid. The heart muscle was pale. The muscles were generally poorly developed, and very pale on section. The joints appeared nor-

mal; the bones were pale on section. The blood vessels were very small and contained very little blood. The thoracic duct was carefully sought for but could not be found.

Dr. Tew desired to add this specimen to the five cases already reported by the late J. W. Ballantyne, as a case of general oedema of the foetus due to congenital absence of the thoracic duct.

Note—I find one other case has been added to those reported by the late Dr. Ballantyne, which has been reported by the Edinburgh Obstetrical Society in 1923. I desire, also, to thank Professor Bullard, pathologist of the University of Western Ontario, for his kind assistance in the post mortem examination of this specimen.

The Prevention of Crime.—The question of punishment is primarily a problem for society rather than for the physician. The latter is concerned more with the earnest, nonpartisan determination of the causes for the antisocial behaviour, their prevention and the treatment of the criminal for the purpose of cure. Probably every one will concede that the protection of society must be the fundamental aim, and this cannot be set aside for any sentimental feeling of sympathy for the offenders. Responsibility and penalty must be estimated by society; they are not medical questions; but it is the duty of the physician to bring home the responsibility of society for permitting the commitment of crime. It is also the function of the physician to lay a foundation on which society can build rational measures for preventing crime.

Many constitutional legal difficulties arise immediately when schemes are proposed for dealing with potential criminals. In the main, these difficulties depend on our ability or its lack to recognize with certainty and to define in precise terms the bodily and mental characteristics that portend antisocial behaviour. If these requisites can be met clearly, the means for dealing with them can unquestionably be formulated in an entirely satisfactory legal manner. Though considerable advances have been made in the medical understanding of behaviour, there is still too much that is speculative and ill defined to permit any general acceptance of available facts as a basis for legislation. The greatest need at the present time is for research into the nature and causes of delinquency. This is strictly a medical prob-

lem, though it will also reach largely into the fields of psychology, sociology, biology and allied sciences. Many agencies engaged in such efforts already exist, but for the most part they are poorly supported and meagrely equipped. There is urgent need for closer cooperation and coordination if facts are to be established and speculative hypotheses which can lead to nothing but distrust and delay in the adoption of a rational procedure, are to be avoided. The figures quoted in the opening paragraph, even with a large allowance for overzealous computation, are surely large enough to justify the expenditure of even large sums for research into methods of prevention. As a strictly business proposition, such a proposal should receive the heartiest endorsement and support from official as well as from voluntary agencies of society.—*Jour. A. M. A.*, Jan. 3, 1925.

Deafness and Its Association with Osteitis Deformans.—In the case cited by Leonard W. Jones, Rochester, N.Y., the patient had an osteitis deformans of the facial bones and this, in time, had caused an otosclerosis. There was no hereditary tendency; the bony changes could not be studied; deafness began late in life, and as the disease progressed, it took on more of the characteristics of nerve deafness, especially in the left ear.—*Jour. Am. Med. Ass.*, Jan. 10, 1925.

Retrospect

RECENT THOUGHTS ON EPILEPSY

A. G. MORPHY, M.D.

Montreal

A paper on epilepsy read by James Collier at the meeting of the Section of Neurology and Psychological Medicine of the British Medical Society, and the discussion which followed afford much material for thought. Dr. Collier is strongly inclined toward the concept of metabolic disturbance as the cause of epileptic seizures. Periodicity, the usual freedom of the epileptic women from attacks during pregnancy, the intense fatty degeneration of the heart muscle in fatal cases of status epilepticus, the comparative immunity of the epileptic from many of the common diseases such as tuberculosis, pneumonia and carcinoma, and the analogy of the convulsive effect of poisons such as lead, absinthe and picrotoxin, and of endogenous toxins namely those of the infectious fevers and metabolic dyscrasias such as rickets, renal disease and puerperal eclampsia, tend in his opinion towards this view. But in spite of all the recent research in the metabolism of epilepsy, in which there is diminished alkalinity of the blood both during and after the attack and the discovery of choline in the cerebrospinal fluid of epileptics, Dr. Collier has to admit that his theory is largely deductive and hypothetical, although a good working hypothesis. The improvement in epileptics under favourable conditions, in epileptic colonies for instance, where occupation, exercise, proper food and fresh air are provided, suggests elimination of toxins as an important factor. And yet, the psychological element in these conditions cannot be disregarded. In this connection—not the psychological one—the experience of a distinguished veterinary surgeon with horses subject to epilepsy, as told to the writer, is interesting. The horses belonging to rich men and used for pleasure purposes only, well fed and insufficiently exercised, ceased having fits when sold to an Irish cabman who gave them lots of work and less food. Still, even here, the psychological influence of the Hibernian driver cannot be absolutely left out of account.

A common everyday experience among epileptics is the effect of indigestible food or even of plain food taken in excess. A man, for instance, who had recently begun to have mild epileptic seizures and had been on a rather strict regimen, broke loose, went into a restaurant, and ate about a dozen large pancakes. He took about the same number of severe fits during the next few hours. Was this the effect of toxæmia or of mechanical irritation? Again, a lad who had been subject to groups of very severe major attacks, ten or twelve in a night, was noticed by his mother to have a foul breath and coated tongue and increased mental dulness after each outbreak. Surely this suggests a toxic element. And yet, in this case, the most careful regulation of his diet has had no marked effect in reducing the number or severity of the attacks.

Even if we admit metabolic dyscrasia as a good working hypothesis, we run into difficulties in consideration of the fact that gross lesions of the brain in certain cases produce convulsions indistinguishable from those of idiopathic epilepsy, and are driven to assume the formation of toxins by histogenesis in the brain substance.

The theory advanced by Hartenburg in 1919 that epileptic seizures are produced not by cortical irritation but by cerebral inhibition and the setting free of the energy of lower cerebral centres is valuable as far as our conception of the mechanism of seizures is concerned, but really brings us no nearer a solution of the problem, for one naturally asks what is the cause of the inhibition. Hughlings Jackson favoured the theory of arterial spasm and localized cerebral anaemia, but failed to explain what lay beneath.

The psychogenetic origin of the episodes classified as epileptic, the aura, petit mal, automatism, even major seizures, is now generally admitted in certain well authenticated cases. Even in cases of brain trauma the fright or shock accompanying the injury may be held responsible for the convulsive seizures.

Many cases of epilepsy in which careful inquiry has revealed a possible psychogenetic origin are known to have cleared up under suitable treatment, namely a modified psycho-analy-

sis. But these cases, in the writer's experience at least, do not as a rule give a history of convulsive seizures in infancy or childhood. Their attacks often follow some definite psychic shock or occur as a manifestation of mental conflicts. And here we are confronted with the peculiar fact that the seizures in these cases are indistinguishable from those in the so-called idiopathic cases. Under this heading are included a group of cases in which there is sometimes great difficulty in diagnosing epilepsy from hysteria, in the absence of hysterical stigmata, and a compromise diagnosis of hystero-epilepsy is made. The study of these cases suggests that epileptiform seizures in general may be considered a form of reaction of the human organism to various stimuli, physical and psychic. Why this form of reaction does occur has not yet been explained.

In the discussion following Dr. Collier's paper Dr. Aldren Turner refers to Dr. Pierce Clark's theory of inherent defect in the personality as the basis of epilepsy, and consequent failure in adaptation to environment. The epileptic, according to Dr. Clark, wishes unconsciously to regress to the pre-natal state of comfort and protection. Dr. Turner points out that many cases are known in which children previously normal developed the so-called epileptic personality after the onset of the fits. Their sensitiveness could naturally be ascribed to the change in their relation to their environment. Debarred from school, from social pleasures and from athletic exercises, not subjected to the discipline exercised upon normal children, they become introspective, unsocial, irritable and pettish. Their reaction to any difficult situation is apt to be a fit.

But no matter whether we accept Dr. Clark's idea of inherent constitutional defect or Dr. Turner's idea of change of personality after the onset of fits, it is certain that the environment must be adapted to the patient. Early removal to an epileptic colony is advisable, before mental deterioration has taken place, if possible. Here the patient is at no disadvantage to others, as he is at home, and he can easily adapt himself to his surroundings. He also has no advantage over others, not being favoured on account of his malady as he was at home. He is on an equal footing with others, and must submit to discipline. This tends to lessen his sensitiveness,

his irritability, his aggressiveness and other objectionable peculiarities. One thing is certain; in no case can the psychological element be neglected.

In the treatment of epileptics too much attention has hitherto been given to drugs and dietetics, to the neglect of the personality. The routine use of sedatives continued for months or even years, especially bromides, with no consideration of the individual himself, his peculiarities, his difficulties, his mental conflicts, conscious and subconscious, is not fruitful of good results. Yet here it must be admitted that many cases, especially those in which fits date from childhood and in which mental deterioration has occurred, yield but very poor encouragement to continued study of the personality after the routine examination has been made, and one naturally falls into the habit of continuing the use of sedatives. But this easy habit is not conducive to a quiet conscience. A healthy qualm pushes itself up into the physician's mind every time he lets a chronic epileptic go out of the consulting room with a repeat prescription and no special investigation.

Dr. Stanford Read, in his comments on Dr. Collier's paper, deals with the psychogenic aspects of epilepsy. He draws attention to the necessity of investigating the patient himself, not his attacks only, with especial relation to mental conflicts, dissociation, repression, and other evidences of psychic imbalance. He quotes Hurst's experience of war epileptics, "that the vast majority, if not all cases of epilepsy which have arisen during the war, with men who never had fits before, are functional". Dr. Read brings out an important point, hitherto overlooked, namely that the periods of physiological stress—puberty for instance—at which epileptic fits frequently begin, are often periods of psychic stress. How many case histories take any notice of this possibility?

In trying to work out the psychic mechanism in some cases of epilepsy it is helpful to bear in mind White's conception of the nervous system as a mass of inter-related reflexes, with any amount of incoming stimuli and manifold outward activities, built on three levels, the physio-chemical, physiological and psychological. Through disease, it is easy to suppose, a blocking might occur at any level with pent up tension and explosive discharge. Why the discharge

should occur as a convulsive seizure instead of perhaps a fit of anger or paroxysm of fear, if the tension is at the psychological level, we cannot explain.

A series of fits will sometimes afford a certain amount of relief. In the case, for instance, of a boy aged fifteen, conduct disorder was the rule during the time when fits were checked by luminal. But for some days after a series of severe attacks, the boy's conduct was, according to his mother, angelic. Here we may easily postulate psychological tension expressed in bad behaviour and relieved by fits.

From the evolutionary standpoint, a parallel might be drawn between the evolution of epileptic sensation, centred in the cortex, from the primitive protopathic variety with its centres in the thalami, and the evolution of consciousness, also seated in the cortex, from the primitive unconscious, both functions being considered as of comparatively late development. If this superstructure has not been firmly established and integrated with lower levels, a cleavage would mean a break in the continuity of consciousness with a return to primitive physiological levels of varying depth.

This concept may help us in formulating a scheme whereby we may place the various manifestations of epilepsy at different levels, but again we must presuppose constitutional defect, and we are not much nearer a solution of the problem.

As regards the drug treatment of epilepsy, various opinions were offered. Bromides with or without borax and arsenic have their advocates. Luminal is preferred by others. The writer's experience during the past five years is decidedly in favour of luminal in virtue of its small depressing effect as compared with bromides. Some authorities caution against giving more than three grains of luminal per day. In the neurological clinic at the Royal Victoria Hospital there are two patients who have been taking four grains of luminal per day steadily for the past two or three years. Both were, under bromides, subject to frequent major seizures and mentally depressed. Under this dosage of luminal they have improved very much, their seizures being very infrequent, sometimes months apart, while formerly they occurred two or three times a week, and have become very mild. No deleterious effect of luminal has been noted in

these cases, nor in any others, provided that the dosage has been carefully regulated.

The rule generally adopted in the Royal Victoria Hospital clinic in reference to luminal is to begin with small doses, one grain or even less per day, and to increase the dose gradually, watching its action carefully. Sometimes a combination of sodium luminal with sodium bromide has a better effect than luminal alone, but its use is empirical, there being no guide as to what cases are specially benefitted by it.

The problem of epilepsy is yet to be solved. Convulsions beginning in infancy and continuing more or less steadily through adult life suggest to the writer some pre-natal influence, possibly an infection, or birth-trauma, which so alters the individual's constitution that he is an epileptic for the remainder of his life.

THE STORY OF MEDICAL EDUCATION IN THE LONDON SCHOOLS

The history of the University of London has been one of continual change, a change not infrequently imposed on it from without. Though in the far-away days of Thomas Young, the poet, its foundation was a response to a genuine desire especially on the part of the dissenting public, it has never really until the present taken a deep hold in the educational life of London. The most important factor in its development was greatly diminished by the abolition of ecclesiastical tests at both Oxford and Cambridge, and still more by the foundation of numerous universities in the provincial centres. For many years it had the power to grant university degrees to external students, and its electoral roll still includes the names of a large number of graduates who had never been students in any London college, and had little sympathy with the educational requirements of the medical schools in the city.

London medical schools were to a great extent a nineteenth century development, an outcome of the practice of "walking the hospital" whereby the physicians and surgeons on the staff were permitted to have apprentices who were given access to the wards that they might gain instruction at the bedside. As the numbers of these increased, the hospitals ceased to countenance

these personal arrangements and made the apprentices students of the hospital and demanded fees from them. By doing this it gave the apprentice students the opportunity to attend the practice of the other members of the staff, and at the same time, the hospital took upon itself the responsibility for supplying what at the time was considered an adequate training. Not long after this step was taken the gradual improvements in medical education in other centres and the increasing requirements of the licensing bodies made it imperative for the hospitals, in order to hold their position, to embark upon a policy of expensive expansion.

School buildings had to be provided, and in time adequately equipped laboratories had to be added with a staff of teachers in the preliminary subjects, placing a heavy burden upon the several individual hospitals, a burden which from the individual independence of each hospital could not be shared between them. In this way the several schools arose as integral parts of the larger hospitals. The schools, however, had no separate incorporation or charter, and as their financial needs increased they became more and more dependent for support upon the Board of Governors through the hospital treasurer or his deputy.

This was a natural and reasonable evolution but it did not make for unity among the schools, and it placed the ultimate decision in matters of school policy in the hands, not of the medical staff but of laymen.

This briefly was the condition of medical education during the greater portion of the last century. Since then notable changes have taken place. First in order of time was the University of London Act of 1898, whereby the university was empowered to convert itself from a mere examining body, pure and simple, into the fuller existence of a governing and teaching body. Under this Act all of the twelve London medical schools were admitted as schools of the university; seven as complete schools, viz.: those connected with St. Bartholomew's, the London Hospital, Guy's, St. Thomas', and St. Mary's Hospital, and the London School of Medicine for Women; five as schools for advanced medical study only, viz.: University College, King's College, St. George's, Westminster and Charing Cross. A further step was taken a few years later when by virtue of the University College

Act, University College was incorporated with the university. Its medical school became thus the first teaching institution in medicine directly associated with and under the control of the university. After a year or two, King's College followed suit and later the others.

An important factor impelling these changes was the increasing cost of medical education. During the latter half of the nineteenth century the Universities of London, Cambridge and Oxford had steadily raised their standards for the entrance and pass examinations, and as a result the medical schools in the city had been forced to provide not merely teachers but also laboratories and laboratory instruction. As a result the expenditure of the medical schools rose to a critical point, and the fees paid by the medical student no longer met the cost of his education. For a time the older universities and university schools weathered the storm, the accumulated endowments of past generations helping to meet the increased cost, but the smaller London medical schools were in a much less favourable position. Moreover the hospitals with which they were associated very shortly found their hands tied and became unable to assist the schools. The rapidly increasing cost of hospital maintenance, demanded that all subscriptions received should be applied to purely hospital purposes and the right to apply any moneys contributed for the support of charity to the maintenance of a professional school was called in question. Matters came to a head when in the early years of the century the governing body administering King Edward's Hospital Fund for London made it a condition not only that no part of its annual grant should be diverted to the upkeep of a medical school but also that no hospital which employed any part of its funds for the maintenance of a medical school should receive any grant at all.

The only obvious way out of the difficulty for the schools appeared to be to demand increased fees from the students, but one of the attractions of the smaller schools lay in the fact that they gave education at a lessened cost. The larger schools already demanded fees that were regarded as so high that they could not wisely be increased. The Governors felt that there was a limit to the amount expendable in preparation for a profession. Taking into account the length and expense of a medical course and the fact

that the ordinary general practitioner can expect to make little more than a livelihood it was held that this limit had been reached and that no material increase was advisable.

With fees already as high as it was thought safe to make them there remained only one source of support. This was aid from the Government, and the only Government department which could under its regulations legally assist them, was the Board of Education. This meant, however, on the part of the schools a preparedness to sacrifice not a little of the independence which they had hitherto enjoyed, as the Board insisted that any grant made to a school should be spent with due economy, and that the accommodation, equipment and teaching in that school be shown to be adequate or could be made adequate by the grant. The Board refused at first to make any contribution to the clinical teaching on the ground that the physicians and surgeons on the hospital staff held appointments determined by the hospitals and not by the medical schools. On a readjustment taking place of the relations between the university and the hospitals, the former was given the privilege of appointing the professors and lecturers on clinical subjects in the different medical schools; with this achieved the University Grants Committee contributed also to the development of the clinical portions of the curriculum. Under these conditions the individual schools felt themselves definitely in the power of the University Grants Committee. Should that committee decide to reduce or suspend the grants to any medical school, that school would find itself at once in a singularly powerless position.

Under these conditions and about this date Lord Haldane who had been acting for a short time as Chancellor of the University, secured from the Government a Royal Commission to consider the whole subject of university education in London. About this date also the report of Mr. Abraham Flexner directed and financed by the Carnegie Trust, made its appearance, criticizing severely the state of medical education and the facilities afforded by the medical schools in the United States. This report was so trenchant and so unassailable in its exposure of the grave defects existing at that time in the American schools that as a direct result of its disclosures about one half of the medical schools in the United States within a very few years

had passed out of existence. In his report Mr. Flexner strongly advocated the advantages for teaching purposes of the scheme on which the teaching hospitals in Germany were run, regarding it as almost ideal, and emphasized the advisability of introducing these German methods of clinical instruction into American hospitals. It so happened that Mr. Flexner was in London engaged on a study of British medical education for the Carnegie Trust while the Royal Commission was in session, and he was asked to present his views before it. In his evidence he pointed out that clinical teaching in London was at that time only an incident in the life of a busy consultant; a consultant who had been advanced to his post not on merit but through promotion on the basis of seniority; his wards were miscellaneous wards and were visited only twice weekly, generally in the afternoon, in company with his house physician and his clinical clerks. There was no direct relation or interaction between the scientific and the clinical side of medicine. Mr. Flexner also stated that he did not consider the teaching hospitals to be equipped and organized suitably to convey to students instruction of a university standard, although admirably designed and conducted for the care of the sick on a routine basis. The laboratories, he considered, were in need of considerable expansion and the teaching staff required complete reorganization. No attempt in the British methods was made to have a permanent scientific clinical staff, without which continuity and thoroughness of study, were alike impossible, and no reward was offered to the young physician to engage in research work. His only cue was faithful routine, and in consequence his preliminary scientific training went largely to waste.

Sir William Osler before the same Commission detailed the scheme which he had adopted at the Johns Hopkins Hospital. He had introduced from the first the Edinburgh system of hospital clerks with free entry into the wards. One head or director had charge of all teaching in the medical wards, and under him there was a paid staff of assistants; house physicians were appointed annually, and adequate clinical laboratories were obligatory.

The whole subject of medical instruction received very full consideration by the Royal Commission and after obtaining from the heads

of the London hospitals the admission that the existing system was faulty, it recommended the establishment in each teaching hospital of units consisting of a paid university professor with full control of the wards, and assistants nominated by the professor to supplement his own teaching and afford special assistance in research. Laboratories were directed to be established in close proximity to the wards for both diagnosis and research. In reference to the preliminary sciences it was recommended very definitely that undergraduates should not be admitted to the study of medicine in the university until they had received thorough instruction in the principles of pure science. The best time and place for this instruction was stated to be the last two years of a good secondary school course. In regard to the intermediate subjects of anatomy and physiology the Commission laid down the rule that laboratory accommodation should be so arranged as to enable the teachers of these primary fundamental subjects to have intimate relation with clinical teachers and with the teaching of all branches of pathology. Associated with these recommendations a scheme was laid down under which external students might be admitted to examination for all degrees except those of medicine and technology, but coupled with this permission was a strongly expressed recommendation that the practice should be brought to an end as early as might prove practicable.

Owing at the time to lack of funds, and shortly afterwards to the onset of the war, these recommendations were for the time placed on the shelf, but recently an increase of the parliamentary grant and a gift of funds from the Rockefeller Foundation to University College have enabled the medical department of the University to carry out many of the recommendations of the Royal Commission. According to an editorial in the *British Medical Journal* the whole system is now getting into good working order, and in March, 1923, the Senate of the University approved of the scheme for a general visitation of all the schools in connection with it, and appointed Dr. J. G. Adami, vice-chancellor of the University of Liverpool, as being wholly unconnected with the schools or the university, and Dr. George Senter, principal of Birbeck College, to make a general visitation of the schools and to report. Associated with them it

appointed a committee of some of the medical members of the Senate to assist in the visitation. A copy of the report of the inspectors has been shown to us, and contains a full and detailed criticism of medical education as obtains in the schools scattered through London. The discussion on the value of clinical units in hospital work may be of interest to members of the profession in Canada. The Board of Inspection in its report refers to the recommendation of the Commission that in order to raise the teaching in clinical subjects to a university standard and to foster advanced study and research clinical units should be established in every medical school. This scheme had also the support of Sir George Newman so far as it had been recommended. Neither Lord Haldane's Commission nor the University Grants Committee however had considered it wise to follow the German plan in its entirety. Instead of this it was arranged that the several surgical and medical "firms" already existing in the hospital should be strengthened by the appointment of a full time director, a part time assistant director, and two assistants, and by a provision for more laboratory space, the whole thus forming a clinical unit.

The advisability of having a full time director interdicted from private practice came under discussion, and the writer of the report states his own views clearly. In preference to the plan decided upon for the London schools, he favours the arrangement entered into at the Peter Bent Brigham Hospital in Boston where the heads of the surgical and medical departments are obliged to be in the hospital during the working day, but are granted certain limited periods during which they may see private patients in the hospital; to permit of such an arrangement a suite of rooms is placed at their disposal. By enforcing the full time rule in England the writer of the review considers that the choice of men for the directorships of clinical units will be limited either to the rare possessors of independent means who may possess enthusiasm for teaching and research work, or to younger men of special promise in experimental work, or to senior men who having had their day and made a competency are willing through devotion to the profession to undertake the work and responsibility associated with such a post. The man of experience in the full tide of perform-

ance will in the writer's opinion be practically debarred. Moreover a further consideration is the fact that the physician whose entire work is done within the four walls of a hospital does not and cannot come in touch with patients exhibiting the very beginnings of disease.

The writer of the report outlines some of the advantages which it is hoped will accrue from the adoption of the plan of clinical units. All the students must act for a time, at least, as clinical clerks or dressers and thus obtain a knowledge of elementary clinical medicine and surgery; they must also assist in the routine of note taking and in the comprehensive examination of the patient. A great factor in good teaching is provided for there is necessarily close contact between the teacher and the taught. In this plan also the director instructs the student in the diagnosis and treatment of the patients who present themselves for the first time at the out-door clinic; while patients who have been discharged from the unit ward are expected to present themselves again and again at the clinic as out patients and the progress of the disease or the results of long continued treatment may be watched by the student as well as

by the director. Another advantage of the team work is the fact that in the unit plan the director with his assistant make rounds together and consult over cases, and frequent discussions take place in which all the members of both medical and surgical units join.

An important object in forming the clinical unit was the hope that it might further medical research, but the writer of the report points out that it is too soon as yet to judge of the value of the organization in furthering this end. So far no director has been able to reserve sufficient time to carry out by himself much experimental research.

Not all the great medical schools in London consented to the formation of these clinical units. A notable exception was Guy's Hospital, which refused to accept direct aid from Government grants, considering that such assistance should be made to the university and that the latter, not the Government, should control the schools. Credit certainly must be given to one Guy's "firm" or clinical unit which has shown itself worthy in every way of standing in the front rank with the best clinical units of the other hospitals.

A. D. B.

Study of Protein Absorption from the Digestive Tract by the Precipitin Test.—The experiments, the results of which Ludvig Hektoen, Paul H. Kanai and Lester R. Dragstedt, Chicago, report, were made in the course of studies of the precipitin reaction of the digestive mucosa in order to learn, if possible, whether certain antigenic substances, taken into the stomach under special conditions, can be traced into the blood by means of the precipitin test. Beef proteins were not detected by the precipitin test in extracts of the digestive mucosa, or in the portal and systemic serum, during the digestive period after feeding fasting dogs fresh beef muscle. It is possible that small amounts of beef proteins may have escaped detection because of an unexpected reaction of normal dog serum with beef serum precipitins. Beef thyroglobulin, on the other hand, may appear in

the portal serum, the systemic serum, and occasionally also in the urine, during the digestive period after feeding fasting dogs fresh beef thyroids. The greater concentration of the thyroglobulin in the portal serum, and its apparent absence in extracts of the digestive mucosa, point to its direct absorption into the tributaries of the portal system. That beef thyroglobulin may pass into the blood from the digestive tract, without the loss of its antigenic properties, is in harmony with the well known fact that the active principle of the thyroid can withstand gastro-intestinal digestion and enter the blood in active form. The results of these experiments appear to warrant further studies by similar methods of the absorption of proteins from the digestive tract under various conditions.—*Jour. Am. Med. Ass.*, Jan. 10, 1925.

Editorial

FIRST CONFERENCE AT OTTAWA ON THE MEDICAL SERVICES IN CANADA

THE Conference on the Medical Services in Canada recently held in the House of Commons, Ottawa, marks a new epoch for the medical profession of Canada. It was attended by seventy-five delegates, representing every Province and Health Board in the Dominion. The session of this Conference, having as its main purpose the betterment not only of the profession but the welfare of the whole Canadian public, would, even under the most ordinary conditions, be productive of good; as a matter of fact, however, the enthusiasm shown at the meetings, the several problems that were brought to the attention of the members, and the interest developed in the discussion of them, and the very practical results that have developed as a consequence of the three days' session, have initiated a programme of policy which will be of far-reaching importance to every Provincial Board, to every Medical School, and, it is believed, to the majority of medical practitioners in the Dominion.

The discussions on the importance of the work in public health, on the housing problems, on notification of infectious diseases, and of the need for the development of a united policy as between the provinces, were marked by an interest and a unanimity of endeavour such as had no precedent in any gathering of medical men before in Canada.

The fact of the meeting being held under the auspices of the Minister of Health was in itself an augury for good, and the participation in the programme of the Deputy Minister had no small significance.

This first conference was in the nature of a "curtain-raiser," and even though it had not been expected that the items on the programme would lead to any definite practical conclusions in the immediate future, the foundations were laid by means of which the health of the country will be cared for through the joint action of the officers of public health, who were so well represented at the Conference meetings.

One afternoon was devoted to the question of Medical Licensure, and the great discrepancies in the regulations as between the various provinces and the disadvantages that arise through such a lack of accord were well portrayed. It was generally agreed that some method of unifying interprovincial and Dominion regulations would be of incalculable benefit, and initial steps were taken to study the matter more carefully. The hope was expressed that in the very near future, some solution might be reached by which prospective practitioners in Canada would have fewer difficulties to encounter than they have had in the past.

Several illuminating papers on the subjects of Medical Education and Post-graduate Instruction occupied the last morning of the Conference, and the prolonged discussion which followed illustrated again not only the benefits from such a meeting, but the enormous advantages that can accrue through a continuance of such discussion for the general advantage of medical education throughout the Dominion.

C. F. MARTIN

JOHN IRVINE HUNTER

THE tragic death from enteric fever of John I. Hunter, the brilliant young professor of anatomy at the University of Sydney, Australia, which occurred in

London on December 10th., 1924, has deprived the world of a man who could ill be spared.

That this young anatomist should

have possessed the name of John Hunter was in itself a somewhat remarkable coincidence, and the fact that his genius resembled—nay, equalled—that of the great master rendered him a figure of extraordinary interest in the anatomical world. He denied kinship with his illustrious predecessor, and Professor Elliot Smith states that “so far as can be discovered there was nothing whatever in his ancestry to throw any light upon the source of his genius.”

Hunter was born in Australia in 1898, and during his childhood he owed a great deal to the devotion of his mother. His very early life seems to have been clouded by illness, and his student days by worry, financial and otherwise. In spite of this he had a brilliant undergraduate career at the University of Sydney, during the last two years of which he acted as a demonstrator in anatomy, in which subject he was greatly interested and was wisely encouraged by Professor J. T. Wilson.

Upon graduating with first class honours and a medal in the spring of 1920, he was immediately appointed senior demonstrator in anatomy; and in the summer of the same year, upon the appointment of Professor Wilson to the chair of anatomy in the University of Cambridge, Hunter, who was then twenty-two years of age and a graduate of some four months' standing, was appointed head of the department of anatomy in his Alma Mater, with the rank of associate professor. This remarkable appointment, which was made at the instance of Professor Wilson, and was so abundantly justified, recalls strikingly the appointment exactly two centuries earlier (1720) of Alexander Monro (*primus*)—remembered by virtue of the foramen which bears his name—as the first professor of anatomy in Edinburgh, at an identical age (twenty-two), and having been “admitted a Master of the Calling only three months previously.”

Soon afterwards—again at the instigation of Professor Wilson—the university wisely gave him leave of absence for the purpose of travel; whereupon he made an extended tour of the principal medical

centres of Europe and North America, remaining at some places a sufficient length of time to permit him to carry out investigations, and thus to acquire a first-hand acquaintance with the technical methods and scientific ideals of the institutions. During this trip he visited McGill University and the University of Toronto.

Upon his return to Australia he was appointed full professor of anatomy, and in collaboration with Doctor N. D. Royle he undertook an investigation into the sympathetic innervation of striated muscle; and, as is well known, as a result of this work and its application in the treatment of certain cases of spastic paralysis Professor Hunter and Doctor Royle were invited to deliver the John B. Murphy Oration in New York in October, 1924. After this they visited many of the medical centres of this continent, again including McGill and Toronto, lecturing on their work and demonstrating their operation.

Towards the end of November Hunter went to England, and, in the words of Professor Elliot Smith, “by a tragic fate he was struck down in the very week when he had hoped to demonstrate to those best qualified to appreciate it the new vision of neuro-muscular function created by his genius and insight.” He was just under twenty-seven years of age at the time of his death.

The amount of original investigation accomplished by Hunter before reaching the age of twenty-seven, and its exceptionally meritorious quality, are so amazing that a brief summary of his more important work can scarcely fail to be of general interest. When he was still a student he was awarded the Sandes Prize in Surgery for an essay entitled “An Interpretation of Abdominal Pain,” which embodied original clinical observations. His first important paper was on primary ovarian pregnancy, in which he established the relationship between the developing zygote and the corpus luteum. As Professor Elliot Smith fitly remarks, “The lucidity of the account of this specimen and the interpretation of its complexities afforded the first indication to

the anatomical world at large that a new John Hunter had arisen."

Turning from the field of embryology to that of physical anthropology, in association with Doctor A. St. N. Burkitt he described and elucidated the occurrence of certain Neanderthaloid features in the aboriginal Australian skull.

In collaboration with Doctor Royle, and employing experimental technique as successfully as he had used embryological and anthropological methods, Hunter next investigated the factors concerned in the production of the symptoms of lesions of the spinal cord.

During his travels he accomplished three distinct pieces of research. While visiting Doctor Ariens Kappers at the Central Institute for Brain Research in Amsterdam, he investigated the fore-brain of *Apteryx*, which earned for him the degree of M.D. from his Alma Mater, together with the university medal.

During his stay with Professor Elliot Smith at University College, London, he studied the minute anatomy of the oculomotor nucleus in *Tarsius* and *Nycticebus*, thereby making an interesting and important addition to our knowledge of the later stages of the evolution of vision. He also reconstructed the famous Pilt-down skull, making his second important contribution to the science of physical anthropology.

Upon his return to Australia Hunter again collaborated with Royle in his greatest and last investigation, concerning the function of the sympathetic innervation of voluntary muscle and its rôle in the causation of certain forms of spastic paralysis. This work established the fact that the sympathetic innervation of skeletal muscle controls that component of tone known as "plastic" tone, by which a limb is maintained in a given posture, and led to the devising of the operation of sympathetic ramisection for the relief of those cases of spastic paralysis in which the spasticity is due to an abnormal increase in the "plastic" tone of the muscles involved.

By a series of ingenious experiments Hunter made contributions of the first importance to the anatomy of the reflex

arcs concerned in the maintenance of muscular tone, and to the functional relationship thereto of certain portions of the brain. This whole piece of work on the sympathetic system is a splendid contribution to science, not only because of its immediate practical importance, but also by virtue of the wide field for further work which it opens up, and of which Hunter himself had such a clear vision.

Professor Elliot Smith has given so admirable a summary of Hunter's work and personality that one cannot do better than quote it. "His elucidation of the difficult problems of ovarian pregnancy, of the true reconstruction of the Pilt-down skull and its significance, of the factors that determine the nature of spinal shock, the comparative anatomy of the oculomotor nucleus, and especially the functional significance of the sympathetic innervation of striated muscle and the central control of muscular tone were each of them tasks of the first magnitude, the successful accomplishment of which would have brought fame to the man who had devoted his life-time to any of them. Yet Hunter did all these things along with his other work before reaching the age of twenty-seven years. The secret of his greatness lay not merely in his knowledge, though it was almost uncanny in its range and precision; nor even in the wide vision and keen insight, which enabled him to find his way through the mazes of the most intricate problems and appreciate the deeper significance of the information he acquired by observation and ingenious experiment. It was rather the greatness of his personality, his transparent honesty and thoroughness, that compelled respect for his judgment and conferred upon him the powers which would certainly have made him one of the really great figures in the history of scientific achievement. Such qualities of mind are extremely rare, and especially in combination with an unselfishness and magnanimity, a charm and joyous understanding that awakened the deepest affection in all who came into intimate association with him."

Like the great John Hunter, young

Hunter had a keen and accurate insight into the processes and problems of Nature, and an extraordinary capacity for devising experiments which yielded exactly the desired information. But above all he had the truly Hunterian vision which embraced without loss of perspective the whole realm of medical science from the invertebrata to the bedside, the Hunterian perception of the precise significance of his scientific observations and experiments to clinical medicine and surgery. He was both scientist and physician, and his early death is an irreparable loss to humanity. He was a genius, not only as Carlyle defined the term, but truly a man intellectually gifted far above the ordinary. Moreover he possessed an altogether exceptional nobility and charm of character which he preserved in spite of his early struggles and worries and his highly intellectual mind.

That a life of such unusual attain-

ments, promise and character should be cut off at so early an age is a tragedy the significance of which will never be known, since it is impossible to imagine what discoveries he might have made had he lived. But short though his life was, John Irvine Hunter has earned a place of honour in the history of science and in the hearts of all who knew him.

Two statements written upon the occasion of the death of Professor G. B. Howes are appropriate now. "We have lost the one man we would dearly have liked to have kept with us." "We who still tarry may cherish the memory and profit by the work and example of one of the best and noblest men who have lived—and died—for science." To which the present writer would add the words of Shelley:

" Till the Future dares
Forget the Past, his fate and fame shall
be
An echo and a light unto eternity."

I. MACLAREN THOMPSON

ENCEPHALITIS LETHARGICA

DR. FARQUHAR BUZZARD recently addressed the Medical Society of London on the subject of "Encephalitis Lethargica." He reminded the Society of his having discussed the same subject before them in 1918, when the malady was just beginning to force itself on our attention but with no hint of its assuming its present serious proportions. It was now a serious menace to the community. Its first definite appearance was in 1918; before that the term "encephalitis" was used almost entirely for an acute specific inflammation of the brain, due to poliomyelitis and occurring chiefly in youth. Now we were faced with an inflammatory condition of the brain liable to affect all ages, "sometimes acute, at other times subacute or chronic, prolific in its clinical manifestations, disabling if not fatal in its results, difficult to diagnose, and almost defiant to treatment and prognosis."

It had been fairly well determined that there was a microbic cause, and the morbid anatomy had been well worked

out, together with a great wealth of clinical detail. And yet, we knew nothing of its path of approach, nor how it was disseminated, neither had we any means of staying its progress. The disease presented no constant or characteristic signs: any function of the brain might be disturbed and so innumerable symptoms and physical signs were possible. Our diagnosis depended on the history of the onset, the course of events, and the exclusion of other likely conditions; we had no serum or chemical tests to rely on for direct detection, and examination of the cerebro-spinal fluid, whilst valuable, gave no picture which was pathognomonic.

In its ambulatory form it presented a very serious problem, for now we were frequently meeting with cases of serious disorder of the central nervous system whose history alone gave any clue as to the origin of their trouble. He could cite cases in which such serious nervous conditions had followed what were apparently minor illnesses, catarrhal or influ-

enzal in type, and in which there had been no symptom suggesting an affection of the central nervous system. In most cases, however, it was possible to elicit a history of some such symptom pointing to organic disease, the most frequently found being a transient diplopia. Acute pains in the limbs, face or neck should arouse suspicion in otherwise minor ailments. There was great difficulty sometimes in differentiating such early forms of encephalitis from early disseminated sclerosis.

The question of prognosis was exceedingly troublesome, especially in the first week or so. He thought we were justified only in indicating the various possibilities, and these were numerous. There might be fairly early recovery with no subsequent ill effects; the patient might die in the acute stages; he might live but remain permanently disabled to a varying extent: there might be apparent recovery and then relapse at a period anywhere from a few weeks to some months, or the development of slowly progressive sequelæ which we now recognize as the legacies of this disease. The more acute the onset and course, especially if there were high fever, the more ominous was the immediate outlook, although, on the other hand, it could not be said that cases apparently mild at the outset would necessarily have a favourable course or termination, or be free from disabling after results. We were still without criteria by which to

pick out the more hopeful cases. Sometimes it was difficult to decide whether the late developments were true relapses or consequences of a past morbid process or fresh infections.

At the same time, even quite acute symptoms such as severe involuntary muscular contractions were not necessarily of grave import: he gave details of a case in which severe myoclonic contractions were present for four years after an acute attack of encephalitis, but in two years more they had almost quite ceased, and the patient, a doctor, was able to carry on a very active practice.

The sequelæ of encephalitis served to guide us in the localization of cerebral functions; he thought it a little curious that so many of the progressive sequelæ took the form of the Parkinsonian syndrome, that is, were associated with lesions of the basal ganglia. He had, however, seen other cases with gradually developing hemiplegias, which perhaps represented other sequelæ, though of less frequent occurrence.

The lesson to be learnt from study of this disease was that all minor ailments presenting signs of organic nerve lesions even of the slightest nature, should be very carefully considered. On general principles we were fully justified in expecting that rest in the early stages would be valuable in treating tissues of such a delicate and highly specialized nature.

H. E. MACDERMOT

JAUNDICE

JAUNDICE has recently been the subject of an important discussion before the British Medical Association in which some of the older views of its origin have been revived, as well as criticism directed to the results of later investigations.

There has long been a controversy on the origin of the bile pigments. Opinion has fluctuated from time to time as to whether they are solely of hepatic origin, or whether they can originate in other tissues. Although this question is still disputed, evidence is accumulating to

show that there is a hæmolytic jaundice, and that bilirubin may be formed apart from the liver. In experimental work the development of bile pigment after removal of the liver, or after cutting off the circulation from this organ has given rise to contradictory results. Minkowsky and Naunyn, in 1886, failed to find jaundice after removal of the liver in animals poisoned by arseniuretted hydrogen and in consequence, as McNee remarks, the belief in hæmolytic jaundice was put aside for a whole generation.

Subsequent observers, however, particularly Whipple and Hooper, in 1913, came to the opposite conclusion. After cutting off the blood supply below the diaphragm, leaving only a head-thorax circulation, bilirubin appeared in the blood and the thoracic tissues showed jaundice, indicating an origin of bilirubin outside the liver. More recently Mann and other workers in the Mayo Clinic were able to completely remove the liver in dogs and to keep the animals alive for twenty-four hours by injections of glucose. Here again bilirubin appeared in the blood and in the urine a few hours later—a very convincing proof of the formation of bilirubin apart from the liver. Experimental evidence opposed to these findings is, however, not lacking. McNee and Prusik, in London, and Oppenheim, at St. Johns Hopkins, failed to confirm Whipple's findings. Rich came to a similar conclusion and further criticized Whipple's work, pointing out that the circulation in the liver was not completely cut off and that this organ was responsible for the bilirubin found in the blood.

On clinical grounds arguments in favour of a hæmolytic jaundice receive considerable support. In the acquired form of acholuric jaundice removal of the spleen is followed by a disappearance of this symptom, a fact supporting the formation of bile pigment in this organ. Perhaps the most convincing proof of an extra-hepatic origin of bilirubin is its local formation in blood effusions in joints, in the brain and in serous cavities, sites in which the liver can obviously play no part in the process. McNee suggests that bilirubin is formed in the reticulo-epithelial cells, a term applied by Aschoff to a system of cells scattered widely through the body, and particularly by those lying in the venous capillaries of the liver and in the sinuses of the spleen. This view is based on his experimental work, these cells being filled with iron pigment when blood destruction is going on. There is, however, no proof that bilirubin is formed as the result of withdrawal of iron from the blood and

the theory can only be looked upon as an interesting hypothesis.

The observations of van der Bergh and particularly the employment of the delicate tests known by his name for the detection of bile pigment in blood or elsewhere have awakened much interest. By means of these tests a distinction can be made between obstructive and hæmolytic jaundice, there being a difference not yet understood in the bilirubin of the two conditions. There are, however, as the author of the tests himself admits, exceptions which cannot be explained, and again a biphasic result is obtained in cases of infectious and toxic jaundice. As this group by far comprises the largest number of cases of jaundice it is obvious that the tests cannot be used as a sharp cut distinction between the two types, both obstruction and hæmolysis being present in such cases.

Turning to the practical aspects of the van der Bergh reactions, latent or early jaundice is readily recognized by a blood examination and gives us definite evidence of this symptom before the skin and urine show colouring matter. It has proved of value in biliary colic, a condition frequently presenting considerable difficulties in diagnosis, and in which clinical jaundice may fail to appear. In cirrhosis of the liver again, latent jaundice may be frequently demonstrated when its existence would not be otherwise suspected. Amongst other conditions van der Bergh points out that the appearance of blood bilirubin in cardiac or cardio-renal disease indicates a break down in cardiac compensation, whilst it also serves to distinguish pernicious from secondary forms of anaemia, hæmolysis appearing in the former but not in the latter. That catarrhal jaundice is primarily a disease of the liver cells with secondary cholangitis causing obstructive jaundice, is a view supported by French observers and also receives support from the van der Bergh reactions which frequently show a biphasic and not a purely obstructive type. The diminished function shown by the levulose test is also in favour of hepatic change rather than of pure obstruction in the ducts, although the latter

condition doubtless plays an important part, particularly when jaundice of a considerable or high degree is present. Gillard has employed the van der Bergh reaction in the administration of salvarsan, thus detecting the earliest development of jaundice which serves as a warning to prevent the full development of a condition which is always troublesome and may even prove fatal. A yellow colour of skin from eating carrots and known as carotinæmia as well as a condition known as lutinæmia, due to a diet of green vegetables and eggs, occasionally developing in diabetics fed on con-

siderable quantities of green vegetables, are readily distinguished from jaundice by the negative blood bilirubin test. From these examples it must be recognized that the blood-bilirubin test is of real aid to the clinician as evidence of early or latent jaundice and its value is now established as the most delicate method known in the recognition of jaundice.

F. G. FINLEY

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COLLOIDAL COPPER INJECTIONS IN MALIGNANT DISEASE

IN the course of a presidential address delivered before the Cardiff Medical Society on November 11th. (*Lancet*, December 27th., 1924) Dr. E. E. Brierly, F.R.C.S.Ed., spoke highly of the value of a course of colloidal copper injections in conditions of inoperable carcinoma. He mentioned two cases of nodular growths in the breast with secondary glands in the axilla which were treated by him with intramuscular injections of colloidal copper; the glands and the growth disappearing after a course of injections extending a little over a year. Both patients are still alive and well, ten and seven years after the commencement of this treatment. A patient with a large scirrhus carcinoma of the breast had her breast removed and the axilla cleared in November, 1916. The supra-clavicular glands on the same side were found to be enlarged when she was seen by him in February, 1918. Intramuscular injections of colloidal copper were given over a period of eight months. The glands disappeared and the patient is still alive and well. A patient, aged sixty-two, who gave a history of hæmorrhagic vaginal discharge called him in

on account of excessive flooding. Vaginal examination demonstrated the clinical signs of cancer of the cervix. Operation was refused, but consent was given for intramuscular injections of colloidal copper. After seven injections the hæmorrhage and discharge had ceased, and the patient refused further injections. On examination the cervix was found healed and smooth. This patient died nine months later from a paralytic stroke.

Among other cases mentioned he reports two cases of advanced and inoperable carcinoma of the rectum which had been treated by him. One improved and put on weight, but died in twelve months. The other received no benefit.

Dr. Brierly referred to a case of inoperable cancer of the rectum treated by colloidal copper and selenium, reported by Lionel Norbury, in Proceedings of the Royal Society of Medicine, June, 1923. Dr. Brierly strongly urged the trial of colloidal copper after operations for cancer and in inoperable cases; emphasizing the need of perseverance in the treatment, even if signs of improvement were delayed until the patient was cured.

ON RADIUM THERAPY

A VERY interesting report has been made by the Medical Research Council on the medical uses of radium,

and appears in the issue of the *Lancet* for December 27th., 1924. The large stock of radium bromide which had been

collected for military purposes during the war was entrusted by the Government to the Medical Research Council, who in the first instance lent the whole quantity to workers in the Middlesex Hospital for an initial series of experiments. Subsequently it was distributed among a number of research centres, thereby inaugurating a co-ordinated inquiry by several hospitals into the medical uses of radium. The report of the Council states that radium therapy has proved itself of unquestionable value in the treatment of certain tumours, and is extremely useful also in the treatment of menorrhagia as was pointed out in a report issued by Dr. R. T. Lewis. On the other hand in many forms of malignant disease, treatment by radium has not brought any advantage. It may be that some types of tumour are more sensitive to the lethal rays than others, but a consideration of the records supplied by the different hospitals and incorporated in the Medical Research Council's report prompts

the thought that we have not yet learned the most effective way of using this potentially beneficial remedy in certain types of tumour. The difficulties which beset experimental work of this type are great, and time and ripe experience alone can answer many of the questions raised. There is, for example, the established fact that the cancer cell can be definitely killed by radium emanations, although unfortunately this lethal effect is only potent in the immediate neighbourhood of the radium tube. There is also the encouraging discovery that certain types of cancerous growth can be arrested, and unpleasant symptoms relieved, by irradiation. The editor of the *Lancet* adds, "Perhaps we are only at the beginning of our catalogue of the value of radium to medicine; at any rate there is sufficient ground for the encouragement of such a systematic research into the uses of radium, as is being undertaken by the Medical Research Council."

ON THE BIOCHEMISTRY OF HONEY

ATTENTION has been drawn in an editorial in a recent number of the *Lancet* (December 27th., 1924) to the valuable properties of honey in providing a really absorbable food. The composition of honey is not only very complex but differs widely according to its source. Its water content may vary as much as twelve per cent. An average of thirty analyses of different specimens gave the following results:—water, 17.2; lævulose, 39.2; dextrose, 34.0; dextrin, 0.45; sucrose, 0.40; formic acid, 1.10; malic acid, 0.30; acetic acid, 0.20; wax, 0.90; proteins, 1.80; mineral salts, 0.75; undetermined, 3.80. Honey is evidently a complicated mixture of carbohydrates, of which the monosaccharides form by far the greater part. The lævulose and dextrose present taken together, exceed by a hundred fold the dextrin and sucrose. Owing to the relatively low water content the caloric value of honey is very high. One ounce corresponds to about a hundred calories, nearly as much as the same

amount of pure cane sugar. Of the origin of the various constituents little is known. The lævulose, and to a certain extent the dextrose, are derived directly from the nectar and the juices of the plant. The origin of the dextrin is obscure; but it seems to be one of the simpler bodies of its kind and is readily absorbed from the alimentary canal. The proteins are derived from the pollen of plants. The wax appears to be a specific product of bee metabolism, and the production of honey and wax vary inversely. The percentage of the organic acids such as malic, acetic and formic acids is high. It is claimed that honey contains both the fat soluble and the water soluble vitamins, and is efficient in warding off deficiency diseases. Enzymes such as invertase are also present. On these findings, honey must be regarded as a valuable food since it contains carbohydrates in a form suitable for direct absorption. The claim is made that honey never gives

rise to fermentation in the alimentary canal, since the dextrose and lævulose being monosaccharides are absorbed so rapidly there is no time for bacterial action. Honey also compares favourably

with glucose as the latter contains only thirty-five per cent. of monosaccharide in the form of dextrose, and lacks the proteins, fats and inorganic acids that are present in honey.

RESULTS OBTAINED IN BABY WELFARE WORK AMONG THE POOR

IN a paper presented in June last before the Pædiatric Section at the annual meeting of the Canadian Medical Association, by Dr. A. B. Chandler, of Montreal, entitled "The Child of the Poor," several interesting observations on the work of the Baby Welfare Association of Montreal are made. This Association cares for the child of the poor in some of the most congested and poverty stricken districts of the city. It was found very difficult to keep track of the movements of many of the families and to do complete follow up work by means of trained public health nurses on all the babies who were seen in the various clinics, owing to frequent change in the domicile of these families. Of the babies who were admitted to the Clinics suffering from malnutrition Dr. Chandler considers that the lack of home sanitation was less influential in producing malnutrition than absolute poverty, or neglect on the part of the mother. Repeated infections, such as the common cold and an attack of otitis media frequently play an important part in the causation of mal-nutrition in this class of patient. Lack of sanitation may, however, play a part in the etiology of the infections. The influence of repeated infections was also noted in babies who were underweight and came from comparatively good homes. Many children were supplied with free cod liver oil, and though the attendants were on the watch for the development of clinical rickets, the disease was not frequently noted. Even among the very poor so long as the baby was breast fed there were few infections and very little rickets. This was particularly true among the foreign-born. Dr. Chandler remarks that these foreign-born represent the class of people that

seem best fitted for the struggle for existence: like the goat they can prosper where another species will starve. Of the 273 babies in the report there was a mortality of nine, about 3 per cent. Three died from pneumonia complicating whooping cough, two from accidents, one from mastoiditis, and two from marasmus. The two who died of marasmus were moribund on their admission to the Baby Welfare Clinic. In the feeding rules laid down it was attempted, when possible, to keep all babies at the breast until they were six months of age; cereals were then added to the diet, allowing the mother to continue nursing for another three months at least. It was found possible to re-establish breast feeding in some cases where the baby had been recently weaned. The only method of stimulating breast feeding that he considered of value was that adopted by Dr. Sedgwick, of Minneapolis, which consisted of manually stripping the breast after nursing. In artificial feeding it was found that the simpler the formula given these ignorant mothers the better were the chances of success. A dilution of whole boiled milk, with the addition of cane sugar, was found to be the most satisfactory; even the addition of pure lactic acid to the feedings, as suggested by Marriott, could not be used safely, not only because of errors made in the preparation of the formulæ, but also because of the prejudice against soured milk. Dr. Chandler draws no conclusions from his experiences with the Baby Welfare Association work, but his figures bear out the impression that among this class of people, breast feeding for at least six months, with supplementary or complementary feedings, if necessary, and after

that time, artificial feedings under regular observation, of a simple dilution of cows' milk and water with added cane

sugar, are the methods to be taught the poor, in educating them in the proper methods of rearing their children.

HARMONIZING WORKMEN'S COMPENSATION LAWS

THE medical profession has adequate reasons for taking a deep interest in legislation relating to industrial accidents and diseases, important phases of which come within the scope of the so-called Workmen's Compensation Laws.

In the Dominion of Canada as in the United States these laws come within the jurisdiction of the provincial or state legislatures and there is naturally a considerable lack of harmony in their scope and operation.

Recently the Conference Board of Physicians in Industry, acting as medical adviser to the National Industrial Conference Board, New York City, presented certain suggestions directed towards the establishment of closer harmony in the enactments and administration of the compensation laws of the various states of the union.

The Conference Board points out that while there is a general similarity in all of the laws, important differences are found in them which make for misunderstandings and discontent on the part of the workmen having claims under them. This is particularly true in adjoining states in one of which benefits for certain injuries may be much higher than for similar conditions in a neighboring commonwealth. The situation has been further complicated by decisions of industrial commissions and courts, which often make opposite interpretations on identical phraseology in different laws.

The Board further indicates that these provisions are not new departures, since every one of them may already be found in the compensation laws of one or more of the states.

Among the suggestions presented, many of which will be interesting to those of our readers who are familiar with problems of Workmen's Compensation in Canada, are the following:

At least one member of each state compensation board should be a physician, who should also be the medical director of the board. Each board should have a consulting staff of specialists to advise it on medical problems. Examining physicians should be appointed by the state board on recommendation of the consulting staff on the basis of their professional qualifications. Only licensed graduates of recognized medical schools should be permitted to treat compensation cases. Medical fees should conform to the average charges for like work in the community. "Medical treatment" should include all necessary medical, surgical, and hospital care and attendance and also such supplies and appliances as may be necessary. Examination of an injured worker should be made immediately following the injury and later examinations should be at the expense of the party requesting the same. The choice of physician should be made by the employer or be made by the employee from a list of local physicians compiled by the employer. Copies of the findings of examining physicians should be furnished to all interested parties, and reports and testimony of other physicians should not be allowed before the board till medical representatives of the other party have knowledge of the information to be given. The refusal of medical treatment by the injured worker should release the employer from further responsibility in the matter. Amputations should be made with regard to the function of the part remaining and not alone with regard to the amount of tissue removed, which latter proceeding might leave a tender appendage, useless for applying an artificial member and would, at the same time, in some states reduce the compensation of the injured employee. Autopsies should be made at the request of the employer, the beneficiaries, or the state board, and should be paid for by the party requesting them. Compensation for disease alleged to be due to accident should be granted only on proof of direct causal connection between the accident and the onset of the disease. Compensation for the aggravation of latent or pre-existing disease should be limited to the degree of disability caused by the aggravation. The per cent. of reduction of vision and its economic valuation should be based on the age and occupation of the employee, and each case should be judged on its merits and not by a predetermined schedule. Claims that hernia has been caused by employment must be made within twenty-four hours of its alleged occurrence and must be supported by proof of certain specified

conditions. Compensation should be granted for occupational diseases that are peculiar to the employment or are due to some unexpected result

thereof. The term "and sequelæ" frequently used in connection with occupational disease schedules, should be eliminated.

Editorial Comments

THE NEW CANADA LANCET AND PRACTITIONER

With the coming of a new year the well known medical periodicals, *The Canada Lancet*, established in 1866, and *The Canadian Practitioner*, established in 1875, both of Toronto, appear as one Journal, *The Canada Lancet and Practitioner*. Dr. Adam H. Wright and Dr. Edmund E. King and the other editors of the *Practitioner* now join the editorial board of the new combined journal. Added also to the board are other physicians of various parts of Canada, representing especially the public health side of medicine: Dr. James Roberts, Medical Health Officer of Hamilton; Dr. A. J. Douglas, Medical Health Officer of Winnipeg; Dr. A. Grant Fleming, Managing Director, Montreal Anti-Tuberculosis and General Health League; Dr. A. K. Haywood, Medical Superintendent, Montreal General Hospital; and Dr. J. H. McConnell, of Toronto.

The new journal also incorporates *National*

Hygiene and *The Dominion Medical Monthly*. It will appear every month and will be devoted to "Preventive Medicine, including Social Hygiene, Mental Hygiene, Child Hygiene, Foods and their Purity, Serum Therapy, Milk Supply, Drug Addiction, Industrial and Institutional Health Problems, etc." One of the most important of the articles in the first number is a sensible résumé of what is at present known of the causes and treatment of high blood pressure. There is also a "Preliminary Report on the Glover Microorganism as the Specific Cause of Carcinoma" by Julian Loudon and James M. McCormack of St. Michael's Hospital, Toronto. We also observe a paper on "The Causation of Cancer" read at the International Conference on Health Problems in Tropical America, Jamaica, July 30, 1924, by Sir Arbuthnot Lane.

It is with great pleasure that we extend to *The Canada Lancet and Practitioner* our best wishes for a long life of useful service to the medical profession of Canada.

We have received a copy of a report on the work of the medical faculty in the West China Union University, Chengtu, Szechuan. There must obviously be heavy burdens in the management of a medical school so far separated from centres of modern thought and teaching, and the difficulty of intercommunication with other schools is one of the first points mentioned. There is, however, apparently a steady growth in the work of this school, due to the spirit of harmony and co-operation which exists amongst the staff. We note that there are altogether thirty-three instructors in medical subjects; several of these are graduates of Canadian universities and there are amongst them also some Chinese graduates of the school. It is planned to get Chinese graduates from other schools as well. The total number of

students undertaking the study of medicine is sixty. The full medical course is five years, the fifth year being mainly spent in hospital and laboratory work. There are three mission hospitals in the town of Chengtu which are available for clinical teaching, and apparently there is no lack of clinical material. The opportunity for expansion of the college is undeniably great, for this is the only mission college amongst 100,000,000 people. H. E. M.

"Look humbly upon thy virtues: and though thou art rich in some, yet think thyself poor and naked without that crowning grace which thinketh no evil, which envieth not, which beareth, hopeth, believeth, endureth all things."

—Sir Thomas Browne.

Men and Books

THE PASSING OF THE ANATOMY ACT*

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Outside of academic and public health administration circles, little seems to be known by medical men about the provisions of the Anatomy Act, let alone of the curious train of events which led to its passing. The following collection of historical facts, relative to the passing of the Act, may therefore prove enlightening to many; and to some it may come as a fantastic relaxation from the scientific pabulum usually provided in these pages. One hopes that a too "Grand-Guignol-like" effect will not be produced: that no one, after perusing this article, shall say with Shakespeare:—

"O, I have passed a miserable night,
So full of ugly sights, of ghastly dreams,
That, as I am a Christian faithful man,
I would not spend another such a night,
Though 'twere to buy a world of happy days."

Before attacking the subject shown in the title, a few words might be said about the Act itself. These shall have bearing on the British Act, for though this was not actually the first of its kind to be passed (the first United States Act—that for Massachusetts—being passed about nine months before the British), yet it had been in preparation several years before any other, and upon it all the other acts are based. Its full title is "An Act for regulating Schools of Anatomy." It came into force on 1st August, 1832; and a glimpse of the causes of its drafting may be had from a glance at its "*pré-ambule*"—"Whereas a Knowledge of the Causes and Nature of Sundry Diseases which affect the Body cannot be acquired without the aid of Anatomical Examination: And whereas the Legal Supply of Human Bodies for such Anatomical Examination is insufficient fully to provide the Means of such Knowledge: And whereas, in order further to supply Human Bodies for such Purposes, divers great and grievous Crimes have been committed, and lately

Murder, for the single Object of selling for such Purpose the Bodies of the Persons so murdered: be it therefore enacted"

The chief enactments are (for the same Act is still in force): (1) that, if any person direct, either in his will, or verbally in the presence of at least two witnesses, that his body be given to a school of anatomy, the body shall be so disposed of, unless objection be made by a relative; (2) a person having "legal possession" of a body may deliver it for dissection, provided the deceased has never been known to have expressed a desire to the contrary, and provided no objection be raised by a relative; (3) that, to put it shortly, dissection is legal if certain rules are complied with (such as proper death certification, making returns to the Inspectors of Anatomy, etc.); (4) that the part of the criminal code, enacting that the bodies of executed murderers be dissected, is repealed. (The importance of this last enactment shall be seen later).

Use of the phrase "having legal possession of a body" has been made above. The legal custodians are, of course, in the first instance the relatives, and, if no relative can be discovered (i.e., in the case of unclaimed bodies), the Secretary of State. But in practice it has been customary to substitute for the authority of the Secretary of State in this matter that of local authorities such as public health authorities, city and parish councils, hospital and infirmary boards, police authorities. This custom has emphasized an important difference in the working of the Act in Great Britain from that on the American continent. On this continent the Acts (for each province in Canada, and each state in the United States has its own Anatomy Act), are mandatory: that is, the Act states that, in the case of unclaimed bodies, the legal custodian *shall* give up each body for dissection. The British Act, however, is permissive: the legal custodian *may* give up the body, and so it often happens that local authorities give considerations of stupid sentiment more weight than considerations of public welfare, and refuse to give unclaimed bodies to the schools of anatomy, despite a great scarcity of subjects. Anyone who has had dealings with "Boards of Guardians"

*Read before the Scientific Club of Winnipeg.

in England will know the class of local authority referred to. It is constituted largely of the same type of man found in the socialist sections of Scottish town councils. One thing he insists upon—that he is “the friend of the poor.” And he says that the bodies of the poor shall not be dissected while those of the rich are buried (although the poor will suffer to the greater degree from want of anatomical training of medical men). And so he does his best to defeat the purposes of the Anatomy Act, and repeats the blunders which a similar type committed a hundred years ago—blunders which, as we shall see, really led to the passing of the Act.

It is beyond the scope of this article to enter into a full account of the history of dissection. But a few facts in this connection must be stated to show how the demand for subjects grew. In ancient times, superstition, and customs founded on superstition, caused dissection to be regarded with horror. This was the case with the Egyptians. The Jewish tenet of pollution was an insuperable obstacle to the cultivation of anatomy amongst that people. The Arabians adopted the Jewish tenet of pollution into their religion. But the Grecian philosophers overcame these prejudices and engaged in the pursuit occasionally; and the first dissection on record was made by Democritus, friend of Hippocrates, in order to discover the course of the bile. The Romans contributed nothing to the knowledge of anatomy: they contented themselves with offering propitiatory sacrifices to the deities presiding over health and disease.

Coming to the Christian era, we find the same hostility to dissection. Pope Boniface the eighth issued a bill prohibiting even the preparation of skeletons. In the fourteenth century, Mundinus, professor at Bologna, astonished the world by the public dissection of two human bodies. In the fifteenth century we find Leonardo da Vinci producing his famous anatomical plates. The entire continent of Europe then lay under the ban which the Roman Church had placed upon dissection, and this was specially felt in Belgium, France and Spain. In Italy, in the seventeenth century, Cortesius of Messina, who commenced a treatise on practical anatomy, could only twice in twenty-four years obtain an opportunity of dissecting a body, and even then had to work under great difficulties and hurriedly. In the Republic of Venice dur-

ing the sixteenth century there was some resistance of papal authority in this matter; but even here, we are told, Vesalius had to resort to secret robbing of graves. He also entered into private arrangements with the judges of criminal cases, whereby the capital sentence was carried out, now in this manner, now in that, now at this time, now at another, as best suited his own purpose.

Gradually during the seventeenth century the practice of dissecting grew, the sentiment of the people being overcome. But all dissections were still performed by the teachers themselves, and never by students. The professors used one or two subjects each session for demonstrating the structure of the human body, while surgical operations were shown on the bodies of lower animals. Dissecting by students was inaugurated by our own William Hunter, when he opened a school of anatomy in London in 1747. Then, of course, the demand for bodies grew enormously. By 1793 there were 200 regular anatomy students in London, and by 1823, 1,000 students using 800 subjects yearly. And what provision was there for the supply of subjects? There was actually legal provision for only about a dozen bodies annually. Here, then, were 800 bodies being used every year, only a dozen of which were supplied by lawful authorities. The others were obtained by exhumation.

What was the legal provision? In the reign of Henry VIII. it was enacted that the bodies of four persons hanged for murder, each year, be given to the Company of Barbers and Surgeons for dissection. By an Act of George II. it was ordered that the bodies of all murderers executed in London and Middlesex be “anatomized” by the Surgeons’ Company. In the early days, when executions were carried out in public places, it often happened that the Surgeons’ Company failed to obtain the bodies, these being stolen from the gallows and sold. Later the executions were performed in Newgate, near which the Surgeons’ Hall was then situated. In 1745 the barbers and surgeons separated, the latter forming a Surgeons’ Company, which, however, came to a premature end in 1796 through an improperly constituted court being held. Then in 1800 a crown charter was obtained, and the Royal College of Surgeons of England established. The college shared with the hangman the duty of carrying out the sen-

tence on murderers condemned to be "hanged and anatomized" right up to the passing of the Anatomy Act, which, as we have seen, repealed this clause of the criminal code. The bodies were not actually dissected by the college. A crucial incision was made (in the presence, by the way, of the City Marshall, who did not always relish the business), sufficient to satisfy the requirements of the Act, and the body was then sold to one of the private schools of anatomy.

As has been stated, most of the bodies used by anatomists at that time were obtained by exhumation. At first this was carried out by the students. But with the rise of schools of anatomy in London (for no license was required to open these) and the consequent competition, teachers offered large enough prices for subjects to make it worth while for men to devote themselves almost entirely to obtaining bodies for dissection. And so arose the class of men known as the resurrectionists or body-snatchers. They figure frequently in fiction. In *The Tale of Two Cities* Dickens has given us a good study of a resurrection-man in the person of Mr. Cruncher. Then there is Stevenson's *Body-Snatcher*. Perhaps also his *Wrong Box* was inspired by thoughts on their work. Other authors who have used the body-snatcher to adorn their tales are: Miss Sergeant in *Dr. Endicott's Experiment*, Lytton in *Lucretia*, Moir in *Mansie Wauch*, Mrs. Crowe in *Light and Darkness*. In *Guy Mannerling* there is reference made to the case of Helen Torrance and Jean Waldie, the sole instance on record of resurrection-women. They promised to obtain a dead child for a surgeon. Failing in this, they stole a live one, whom they murdered, selling the body for "half-a-crown and the price of a dram." Both these hags were executed.

By 1828 there were more than 200 resurrectionists in London. But of these only about ten supported themselves regularly with the profits of exhumation. Three of these regular men, described as master-resurrectionists, later gave evidence in the House of Commons before a select committee on anatomy. They gave evidence under the initials A.B., C.D., and F.G., their names being concealed because of the strong feeling against them on the part of the public. But in all probability A.B. was the famous Ben Crouch, and C.D. was one Naples, portions of

whose diary are given in *The Life of Sir Astley Cooper*. Here are two extracts:

"Sunday, February 2nd, 1812. Went to look out, met at five in the evening, went to the Green, got seven large and three small and three foetus. Same night went to Wygate and got four large and two small. Took them to Bart's.

"Tuesday, February 25th. At home all day. At night the moon at full, could not go."

They had tables for calculating the phases of the moon. You see they had to pay attention to this, like those midnight marauders of more recent date, the Zeppelins. And note the entry for Sunday, February 2nd,—nineteen bodies in one night. The large number is probably explained by the fact that paupers were buried many in the one grave. But it must have been quite remunerative work, considering that they got an average of seven pounds for a body. Of course this was a gang containing the most famous of the resurrectionists—Crouch, the brothers Harnett, Holliss, and Naples.

The "occasional" men were thieves of the lowest grade, and often used this business as a cloak for their more criminal purpose. In this way they could convey stolen goods about at night in a cart with a body placed on top; and if stopped by the police, "Oh, they were just taking bodies to the surgeons" explained everything. These were the men who caused the great scandal about church-yard rifling. One gang would do anything to spoil the success of another, and so there were often fights in the graveyards, which would be left strewn with displaced tombstones and shattered coffins. Gradually public feeling grew stronger against this desecration. Devices for guarding graves were adopted, patent iron coffins used, and armed guards placed over new graves. In some of the old church yards in Edinburgh and Glasgow, graves are still existing with iron coverings—mortsafes. While in Crail, a little village near St. Andrews, stands a stone house which was used for storing bodies till they decomposed, before burial, thus rendering them useless for anatomical purposes.

Also the authorities began to make arrests, though it was difficult to secure convictions, since at that time there was no property in a dead body, and a prosecution for felony could not take place unless some portion of the grave-clothes or coffin could be proved to have been

stolen with the body. But nothing of this deterred the resurrectionists. They still obtained bodies—fought the guards, bribed burial-ground keepers, paid cheap undertakers to bury empty coffins and hand over the corpses, represented themselves as relatives of dying patients in hospitals. The chief result was that they raised the prices of bodies owing to the greater difficulties in obtaining them: the price per subject rose in some cases to sixteen guineas. But because of the difficulties the supply did decline somewhat. In 1823, as we have seen, 800 subjects were used. By 1828 only 450 were procurable in one year, and 200 students were going yearly to Paris, where bodies cost but seven francs, and where English teachers had opened schools.

Much might be said of the resurrectionists—of their methods of working—of the gruesome discovery of cargoes of corpses on the smacks bound from London to Edinburgh and from Liverpool to Glasgow. This information is still accessible in the pages of *Blackwood's* and the *Westminster Review* of the years 1824 to 1832. But I have now to point out that the resurrectionists began to impose on the teachers of anatomy in various ways. As has been stated, they raised the prices of subjects, in some cases to sixteen guineas, whereas at one time two guineas had been an accepted price. But in addition to this, at the commencement of each teaching term the teacher had to give each member of the gang he dealt with a *douceur*, and again at the end of the term "finishing-money." Then if a resurrection-man were imprisoned, the teacher had to assist in keeping the man's wife and children while he was serving his sentence, and give him a solatium on his discharge from gaol. R. D. Grainger paid fifty pounds in one term in this manner, and Astley Cooper large sums. And the teachers were quite at the mercy of these scoundrels. For if they refused any of their exorbitant demands, the latter retaliated by various devices, such as selling a body and then informing the police, leaving bodies lying outside schools at night so as to arouse mob-fury, and hacking up the bodies supplied by other gangs. So gradually the teachers became more and more insistent in their demands for legislation. The chief objection raised by the legislators was the great prejudice of the people against dissection. But it was pointed

out that this objection was due to the fact that the people felt that dissection was part of the sentence passed on a convicted murderer, because of the act of Henry VIII. already alluded to. The teachers desired the repeal of this act in order to remove the prejudice against dissection, and also because when they received the body of a notorious criminal, they were pestered by morbidly curious people wishing to see the corpse. The answer to this proposal was that nothing must be done to weaken the law: to withdraw the part of the sentence relating to dissection would rob the punishment of its prohibitive effect (!)

Many were the suggested remedies. To make the idea of dissection less distasteful to the public, it was thought that the subject of anatomy should be popularized. And in Ireland Sir Philip Crampton opened his lectures to the public, many of whom later brought their dead to him instead of burying them. Letters flooded the press of the day, suggesting, among other things, the giving to the anatomists the bodies of suicides, drunkards, prize-fighters, duellists, and prostitutes. One anatomist, (Dermott, Little Windmill Street School) suggested that all medical men bequeath their bodies for dissection. And this was done by certain people: Jeremy Bentham was one, and his body was partially dissected at the Webb Street School, an oration being delivered over the body by Mr. Grainger. And a Mr. Boys left his body for the same purpose, with the provision that, after the anatomists had finished with it, they should convert the remaining parts into what he termed "essential salts", perfumed, for his female friends (!)

As early as 1810 an Anatomical Society had been formed with the object of enforcing legislation for the legalising of dissection. It comprised the chief anatomists and surgeons of the time, and numbered among its members Abernethy, Bell, Home, Brodie, Cooper, and Cline. It was not until 1828 that they were successful in obtaining the appointment of a select committee of the House of Commons "to enquire into the manner of obtaining subjects for dissection in the Schools of Anatomy, and into the state of the law affecting the persons employed in obtaining and dissecting bodies." Among those who gave evidence before the committee were the surgeons and anatomists (Cooper, Brodie, Abernethy, Caesar Hawkins, Grainger,

Brookes); the police magistrates (Twyford) policemen; and the master-resurrectionists already mentioned. The evidence had showed (1) the absolute necessity of teaching anatomy to men intending to practice medicine; (2) that a medical man might, under existing laws, be punished in one court for want of anatomical knowledge (actions of malpraxis), and also be punished in another court for securing the means of obtaining that knowledge; (3) that resurrectionists, and the evil state of affairs associated with them, were peculiar to Great Britain and America, these being the only countries where legal provision for the supply of anatomical material had not been made, and that, therefore, the passing of a suitable act would do away with them; and (4) that it was useless simply to pass laws making the violation of graves a felony, for the lower classes of resurrectionists would stop at nothing, probably not even murder.

But despite all this evidence, probably nothing would have been done for years, but for the stimulus imparted by the receipt of startling news from Edinburgh. I refer to the bringing to light of the West Port murders, perpetrated by Burke and Hare in 1828. Let us turn for a moment then, to the leading school of anatomy in Scotland and learn the leading method of obtaining subjects! The history of the obtaining of bodies in Scotland had been very similar to that in London—first a town council charter to the incorporation of barbers and surgeons granting the bodies of executed criminals, later augmented by the bodies of those dying "on the parish". But later came the rise of the anatomy school in the university under the Monro dynasty (which lasted, by the way, for 126 years, father, son, and grandson); and, in the time of Monro tertius, the appearance of the extramural schools under Barclay and Knox. And so arose the custom of body-snatching, with its attendant scandal. The resurrectionists here, according to Professor Christison, included assistants of the professors, and students, aided often, however, by the eminent body-snatchers from London, such as Crouch. The famous Robert Liston was the hero of many an escapade on the Fife coast. In addition to these amateurs there were regular men too.

The first steps of Burke and Hare in their path of wholesale murder are interesting. The

two were Irishmen, who came to Scotland to work on the Union Canal, and later lived together in a vagrant's lodging-house which Hare had acquired. One Donald, an aged pensioner, dying in the house in Hare's debt, the idea was conceived of remedying the loss by selling the body. The two worthies therefore set out for Professor Monro's rooms at the university, but were met by a student of Dr. Knox and directed to the latter's establishment. But for this accident, the odium, which later attached itself to Knox's name on the supposition that he must have been privy to the crimes, might well have been Monro's. On their arrival at Knox's, Burke and Hare were met by the brilliant Knox and his three assistants, (afterwards famous as Sir William Ferguson, Thomas Wharton Jones, and Alexander Miller), and received seven pounds ten shillings. This was easy money for the conscienceless pair, so they resolved to make a regular business of it. But inmates of the lodging-house dying too infrequently, they took to marking out their victims on the streets, enticing them to their house, where they rendered them unconscious with liquor, and then suffocated them. In this way they committed, according to their own confessions, sixteen murders. At first there was a monotonous regularity in the class of victim, as complained of humorously by "Christopher North" (Professor Wilson) in *Blackwood's Magazine*, March, 1829: "First ae drunk auld wife, and then anither drunk auld wife, and then a third drunk auld wife, and then a drunk auld or sick man or twa." But later they became so bold as to commence operations on public characters such as Mary Paterson, Edinburgh's most beautiful "demimondaine" (her body was recognized by the students!) and daft Jamie Wilson, a "natural". But finally their sins literally "found them out", and they were arrested, along with their supposed wives. Hare turned King's evidence and so escaped justice, but Burke was hanged publicly.

Burke's skeleton is still kept in Edinburgh University. We owe to him a double debt—he helped on the passing of the Anatomy Act and he enriched our language by the addition of a new verb. He is sometimes confounded, by the unlettered, with his right honourable namesake. Even the astute Mr. Jorrocks falls into this error in *Hillingdon Hall*: "'Fine speech of

Burke's, monstrous fine speech', said the Duke of Donkeyton. 'He was 'ung for all that', observed Mr. Jorrocks to himself, with a knowing shake of the head."

These revelations, then, gave a fillip to the work of the select committee, and a bill was introduced into the House of Commons in March, 1829. But perhaps murders so far off as Edinburgh could not disturb the peace of mind of those ensconced in St. Stephen's, and the bill was thrown out by the Lords. But now murder came nearer their door. In 1831 the killing of an Italian boy by Bishop and Williams (or

Head) was discovered by Mr. Partridge, demonstrator of anatomy at King's College, where they tried to sell the body. These two later confessed to other murders and were executed, an accomplice being transported for life.

After this little need be said. Mr. Warburton introduced the present Act into the House of Commons in December, 1831, and it passed safely through both houses. And, with the coming into force of the Act, disappeared the resurrectionists, those "bootleggers" of human bodies, never to reappear since, except in a few unauthenticated instances.

Correspondence

TREATMENT FOR PNEUMONIA

To the Editor:

At this season of the year when pneumonia is becoming prevalent I wish to bring before the profession a useful treatment for it. From my experiences with this remedy I regard it as a specific for pneumonia if given within twenty-four hours of the initial chill. Given after disease is well established, any time during the second to fourth day, it will shorten the course of the disease by bringing on an early crisis. This remedy is wine of ipecacuanha pushed to its physiological action on the vomiting centres and then restricted to the verge of slight nausea.

To carry out the treatment the patient should be placed in a comfortably warm room and be given from 10 to 20 minims wine of ipecac every three hours. The average dose for a robust patient is 15 minims. Heat, as afforded by a good flaxseed meal poultice, over the affected lobe appears to hasten the effect of the remedy. This treatment will abort the attack if started within the first twenty-four hours. The remedy should be given in smaller doses for three days at least after the attack is aborted. If the treatment is discontinued immediately there is danger of the disease lighting up again. To illustrate by case reports I will cite a few recent cases

Case 1.—Female, sixty-eight years of age. Previous history negative until six months before attack when I had occasion to treat her for cardiac trouble. One morning at 10 a.m., patient had a severe chill and said she felt very ill. I saw the patient at 7 p.m. She looked very ill and was restless, had slight cough with scanty rusty sputum,

temperature 102.5°, pulse 130, respiration 39. Examination revealed signs of a typical right lobar pneumonia. I ordered her 15 minims wine of ipecac every three hours to begin with, reducing the dose to 10 minims after third dose. At 7.30 the following morning, temperature 99°, pulse 104, respiration 28. At midnight temperature 97°, pulse 82, respiration 24. Forty-eight hours after onset temperature 98°, pulse 74, respiration 22.

Case 2.—Male, fifteen years of age. Previous history negative. Had been ill with influenza for four days, but kept at work where he was employed, as the influenza was of a mild type. On the morning of fourth day patient felt very ill, and developed a chill, irritating cough, rusty sputum and the typical symptoms of pneumonia, temperature 103°, pulse 124, respiration 40. My first visit was at 6 p.m. on the first day of the pneumonia. I ordered 10 minims wine of ipecac every three hours with a hot poultice over affected lobe. At 5 p.m. on the following day the temperature was normal and patient so well that I did not visit him any more.

Case 3.—Male, forty-five years of age. Previous history negative. Called at end of second day of illness. Patient very ill. Severe irritating cough with sticky-rusty expectoration; pain over the affected lobe; prescribed wine of ipecac, 15 minims, every three hours. The following is the record I kept: Visited him next day and found his condition much improved. Following day he appeared better. Visited him again on fifth day of disease and found that the crisis had been passed.

I could go on quoting a large number of cases but I think that the above will serve the purpose for the present. I may add that similar encouraging results are coming from Halifax since Dr. Chisholm announced my success with the remedy.

I wish to ask the different members of the profession who will try the remedy to kindly advise me of the results so that they may be presented to the *Canadian Medical Association Journal*.

Yours very truly,

H. A. Grant, M D

Whycocomagh, N S
December 26th, 1924

THE DUTY OF THE PUBLIC TO THE PROFESSION

To the Editor:

In these days of criticism of the methods and manners of the medical profession, one is forced to the thought that every duty imposed upon the medical profession by the needs of the public should involve a corresponding duty on the part of the public towards the profession. The profession has been attacked so often that one begins to wonder whether all the onus of blame attaches to the one side. The profession has been accused of lacking interest in the public, and in thinking only of patients as "Cases", but has the public not to a certain extent itself to blame for this state of affairs, if such actually be the case? In some quarters it seems to be the privilege to decry any good work done, and conscientious endeavour is treated in terms bordering on contempt. The practitioner is regarded as a charity organization by many, whilst if anyone who is getting a good salary happens to be presented with a bill which seems a trifle large, though within the limits of the recognized fees, he forthwith, proceeds to describe the profession as an organization of bandits.

To a man who has spent years of his life preparing for his task, the remuneration obtainable is none too attractive. What day-labourer would care to go out and get no pay for many of the hours he "put in?"

It is counted a terrible breach of trust for a doctor not to appear when called to a serious case, but should he insist on settling up the account at a later date, he is at times accused of being mercenary.

When one gives one's best skill to a case, and the patient disappears on the eve of success to the service of another medical man, or to that of the chiropractor, without warning, it does not conduce to pleasant thoughts.

Possibly the pecuniary aspect of professional life has been over emphasized, but it is to this that objection is frequently taken on the part of the public. It is wise to emphasize the fact that not only have we a duty to the public, but the public by their intelligent cooperation with the profession and recognition of his claims can do a great deal to make the practice of medicine a success and satisfaction to all parties.

Yours truly,

R. Kerr Dewar, B.Sc., M.D.

Fort William, Ont.
January 6th, 1925.

To the Editor:

I have been receiving the *Canadian Medical Association Journal* for the past year, but was not aware until just recently to whom I was indebted for the kindness. Permit me to thank you and through you, the Canadian Medical Association for this thoughtfulness and kindness on their part in sending the *Journal*, to one, who for months on end never sees a colleague nor a *confrère*, but must rely on his library and magazines for help. I can assure you that the *Journal* is invaluable to me and I appreciate more than I can express this consideration at the hands of the Canadian Medical Association.

Yours sincerely,

Wallace Crawford, M.D., D.P.H.

Canadian Methodist Mission, General Hospital,
Kiating, West China. November 18th., 1924.

To the Editor:

The action of the Executive in sending the *Journal* gratis to their colleagues engaged in medical missionary work is greatly appreciated by those of us who are doing such work. Personally I have taken the *Journal* ever since 1921. Yesterday, my colleague, Dr. W. J. Sheridan and I were discussing the thoughtfulness of your action and we both spoke of the helpfulness of the *Journal* in our work and consider it one of the most practical magazines that we receive. The articles are not padded and are of such a length that people who have not much time for reading can get time to read these. Not only that but the articles are on subjects that are of keen interest to us every day in the week.

Thanking you for the courtesy of your action,
I remain,

Yours very sincerely,

W. H. Birks.

Canadian Methodist Mission General Hospital,
Chungking, West China. December 1st, 1924.

To the Editor:

It is only to-day that I have found out to whom I am indebted for the *Canadian Medical Association Journal*, and I hasten to send my very warm thanks to the Executive Committee for their most kind and generous action towards us who are at the far ends of the Earth. The *Journal* is a very helpful and inspiring visitor and I am sure its presence is a real asset to us in many times of need.

Yours very truly,

G. Gushue-Taylor.

Mackay Memorial Hospital,
Taihoku, Formosa, Japan. December 12th, 1924.

Abstracts from Current Literature

MEDICINE

Bone Marrow and Spleen in the Treatment of Anaemia. Leake, D., and Evans, J. S., *Am. Journ. of the Med. Sci.*, Dec., 1924.

The treatment of various types of anaemia by means of iron and arsenic is often unsatisfactory, and experimental evidence has been adduced to show that neither of these remedies has any appreciable effect on the curve of haemoglobin regeneration following simple anaemia. The authors admit however that the clinical evidence of their value on the whole cannot be easily disposed of by laboratory experimentation.

They suppose that the output of red blood cells is dependent on the extent of erythrocyte destruction, and that the spleen produces in proportion to this destruction a hormone which stimulates the tissues producing these cells, e.g., the red bone marrow. On this assumption animal experimentation was carried out which showed that splenic and red bone-marrow extracts were powerful erythropoietic agents, and were most effective in combination. Experiments were then carried out on normal human subjects which apparently showed that desiccated preparations of these substances, in capsule form, caused a considerable increase in the number of red blood cells and in the haemoglobin content: there was no increase of blood volume, nor were there untoward symptoms.

It is pointed out that the giving of red bone-marrow is nothing new in the treatment of anaemia and there is a large literature on the subject with many reports of success with this substance: but splenic extract has received comparatively little attention from clinicians, although the relation of the spleen to the production of blood elements has been exhaustively worked out.

The authors are emphatic in saying that promotion of haematopoiesis in anaemia is symptomatic treatment only: the cause underlying the anaemia must always be sought for.

They report the results of their treatment of anaemia by desiccated red bone-marrow and

spleen in 102 cases, of which only sixty-five are referred to. These included two cases of pernicious anaemia which were not improved but ran a rapidly fatal course. The criteria of the results in their cases were as follows: "no improvement" was applied to cases in which the haemoglobin percentage did not improve by five points nor the erythrocytes by 250,000; a case was "slightly improved" when the haemoglobin percentage increased by from five to ten points and the red blood cells from 250,000 to 500,000 cells; under the term "markedly improved" were placed those cases in which the haemoglobin percentage was increased by over fifteen points and the cells by over 1,000,000; and along with this improvement in blood constituents the symptoms of dyspnoea, oedema, pallor, etc., were also relieved.

The final results show that forty-seven were moderately to markedly improved with regard to the blood picture and their symptoms whilst eighteen showed little or no improvement; including in this number the two cases of pernicious anaemia.

The desiccated red bone-marrow and the desiccated spleen were combined in equal proportions by weight and administered in 5 gr. capsules, three times daily before meals with plenty of water. H. E. M.

Report on the Treatment of Anaemia by Administration of Spleen and Red Bone-Marrow Extract. Porteous, H. B., *Edin. Med. Jour.*, Nov., 1924.

This report gives results of treatment according to the method of Professor Leake and his collaborators. Only four cases of anaemia were treated and the conclusions reached were that in two, the effects on the blood were similar to those reported by Professor Leake, i.e., a rise in the number of red blood cells whilst the combined extracts were administered, together with a heightened haemoglobin percentage. These elevations disappeared when the extract was withdrawn, but there was apparently no effect on the resistance of the cells to haemolysis. In the other two cases the results were inconclusive.

The author thinks that a fresh extract would

probably be more effective than one which had been kept some months for it was the first two cases which showed the improvement, the time when the extract was fresh. And he suggests also that further investigations be carried out to determine the type of case which will be most benefited by this treatment.

H. E. M.

Syphilitic Aortic Insufficiency. Scott, R. W.,
Arch. of Internal Medicine, Nov. 15th, 1924.

The author begins his article by stating that syphilis of the aortic orifice is now recognized as the most common cause of aortic insufficiency in adults. The disease is so frequently associated with syphilis of the aorta itself, that, from a pathological standpoint, one is not justified in considering the two conditions separately. The present article is based on a clinical and pathological study of twenty-five cases. Twenty-four were men and one was a woman. The ages varied from thirty years to sixty-four years, with an average of forty years. All had signs of aortic insufficiency and, with one exception, all died of heart failure. Diagnosis was confirmed by post mortem examination. Physical exertion did not appear to be a determining factor in the heart failure.

The abrupt onset and progressive nature of the symptoms were characteristic features, which appeared in contrast to those seen in persons with aortic insufficiency from rheumatic infections. In view of the fact that most of the patients were well developed adults in the prime of life, and with no previous cardiac history, the contrast was even more striking. Shortness of breath and palpitation on exertion were the first symptoms observed by nearly every patient. The majority of patients could remember the week or month of onset. Rest in bed only afforded temporary relief. On getting up, the same incapacity for physical exertion was experienced as before resting. The duration of symptoms, before signs of heart failure appeared, varied from three years to two weeks. In spite of symptomatic and anti-syphilitic treatment, twenty of the twenty-five (80 per cent) ran a progressive downhill course to death. Symptoms ordinarily attributed to syphilitic aortitis, i.e., substernal pain, nocturnal dyspnoea, anginal attacks, etc., were noted in only one patient.

With the exception of one case complicated by

tuberculous meningitis, the patients were well developed and well nourished. Pallor of the face was the rule, but this was not due to anaemia as shown by blood counts and estimation of the haemoglobin. Respiratory distress closely paralleled the diminution in vital capacity from congestion at the lung bases. All cases except two, who were moribund when first examined, presented the characteristic vascular signs of aortic insufficiency. In approximately one-third of the patients, a typical Flint murmur was elicited at the apex. Without exception every case in the series had both a systolic and a diastolic murmur. Aortic arch dilatation was suspected in several cases but not confirmed by necropsy. Electrocardiograms showed no one abnormality which appeared characteristic. The blood Wassermann reaction was positive in 95 per cent of the cases. This corresponds to the findings of other writers.

At necropsy, every patient showed syphilitic mesaortitis. In 80 per cent the lesion was demonstrable grossly as well as microscopically. In five cases senile arteriosclerosis obscured the gross picture, but mesaortitis could be demonstrated histologically. In every instance the normal architecture of the vascular area was distorted so as to produce insufficiency at the orifice during diastole. The picture was invariably that of aortic insufficiency and never of stenosis. With the exception of one case, all showed thickening of the left ventricle. The gross picture of the heart muscle differed in no way from that seen in hypertrophied hearts from other causes. No patient had disease of the other cardiac valves. There was no relation between the severity of the disease process in the aorta, and the degree of involvement of the aortic leaflets. Various deformities of the valve leaflets occurred much more frequently than ring dilatation. The simplest valve defect noted was a curious sagging of the free border of one or more cusps.

From a study of the gross picture, it would appear that syphilis spreading from the aorta toward the heart can attack no more vulnerable spot than the site of insertion of the aortic leaflets. An interesting point noted was that in spite of active disease surrounding the orifices, the coronary vessels themselves were seldom involved. Exceptions were noted in the patients with intimal arteriosclerosis.

On microscopical examination, syphilitic mesa-

ortitis was easily distinguishable in all but four cases. The histological changes in the heart muscle were similar to those frequently seen in hypertrophied hearts from other causes.

In commenting on his paper, the author draws attention to the fact that the majority of the cases had no symptoms which interfered with their daily occupation, while the disease was confined to the aorta alone. He considers this observation difficult to reconcile with the views of Allbutt Wenckebach, *et al*, on the dependence of angina pectoris upon aortitis. It was found by making casts of the aortic valve area that in several cases, as much as one half of the total area of the aortic orifice may be rendered insufficient by syphilis.

V. C. MONTGOMERY

PAEDIATRICS

Gastro-enteroptosis in Children and its Relation to Recurrent Vomiting. Sterman and Koenig, M.D., *Arch. Paed.*, Sept., 1924.

There are several causes for the attacks of recurrent vomiting seen so often in neuropathic children. Such attacks are often precipitated by infections, undue excitement or fatigue, and result in persistent vomiting with symptoms of ketosis and dehydration. Many of these children are found to have gastro-enteroptosis which interferes with proper digestive function.

Satisfactory results may be attained by securing the stomach and colon in their proper position and three methods are recommended. First, the child must be taught to assume a proper posture. Secondly, the tone of the stomach and intestines may be greatly improved with rest in the supine position, and thirdly the viscera may be held in place by an abdominal belt. It may be necessary to wear this belt for two to four years, and as the child gains in weight and strength the malposition and hypotonia will improve, with a cessation of such symptoms as recurrent vomiting and ketosis.

The only time to cure gastro-enteroptosis and its symptoms is in young children; in later years it can only be relieved.

L. M. LINDSAY

A Study of Pneumonia in Infants and Children. Moffett, R. D., *Archives of Paediatrics*, Nov., 1924.

The author has collected statistics from a series of 437 cases of pneumonia occurring in a

hospital in New York. These patients ranged from six weeks to fourteen years in age. There were 218 cases of lobar pneumonia, 199 cases of broncho-pneumonia and in twenty cases the type was not determined. The mortality rate was 12.9 per cent in lobar pneumonia, and only 7.1 per cent in broncho-pneumonia. The author states that these figures are considerably lower than most authors give. The patients with broncho-pneumonia of the influenzal type were more acutely ill than those with lobar pneumonia although the mortality rates were lower.

The most frequent complications arising in the course of the disease were otitis media and empyema. In most cases of pneumonia there was a small amount of pleural effusion as determined by physical examination and x-ray. Thirty-two cases had sufficient fluid to be considered as pleurisy with effusion. Of these fourteen developed empyema, resulting in four deaths. If the pus contains streptococcus or staphylococcus the fluid should be drained immediately. If pneumococcus is present it is better to delay opening the chest until the fluid becomes thick. This gives time for the pneumonia to subside and the patient's condition to improve before operation. It also permits adhesions to form and prevents early collapse of the lung.

In discussing treatment the author recommends early stimulation with digitalis, camphor, caffeine, and whisky. In using digitalis he gives one drop of the tincture in forty-eight hours for each pound of body weight. At the end of this time the patient is digitalized and the dose may be reduced to one-half. Caffeine-sodium-benzoate in doses of one-half grain hypodermically may be used until the effect of the digitalis is obtained. Whisky was found valuable in the cases with marked delirium and severe toxæmia. The author, contrary to the belief of many observers, believes that myocardial weakness is common in pneumonia in childhood, and that this can be averted by the above mentioned methods.

S. G. R.

Pigment and Iron in the Infant's Diet. Hill, L. W., *Boston M. & S. Jour.*, Aug. 21., 1924.

The oxygen-carrying power of haemoglobin depends on its iron content. Hematin is chemically related to and probably derived from the

chlorophyll of green leaves, such as spinach. The color of carrots, squash and oranges as well as of eggs and cream is due to other closely allied natural pigments. Haemoglobin cannot be made from iron and protein alone but requires a certain amount of these pigments.

Human milk contains very little iron and cow's milk still less. In order to compensate for this defect a store of iron is deposited in the liver during the last month or two of intra-uterine life. This deposit of iron diminishes at a variable rate from the time of birth and if not supplemented by iron in the food alimentary anaemia will ensue. Obviously if the infant is one of twins, or born prematurely, or if the mother is anaemic or debilitated this deposit of iron will be inadequate for future needs, and anaemia is sure to develop often before the third month. It is therefore necessary to add iron and pigment to the diet of such infants at an early age. Spinach contains both these elements and if finely strained is well tolerated. Egg yolk is equally good and contains other important factors such as the fat-soluble vitamins. Beef juice contains a moderate amount of both iron and pigment, while prune juice contains a surprisingly large amount of iron. Spinach loses about one-third of its iron in the water in which it is cooked so that this ferruginous water may well be used as a diluent in milk formulae.

The requirement of iron in a small infant is only about one milligram daily, which could easily be supplied by small amounts of the saccharated oxide of iron, but this would not supply the pigment necessary for haemoglobin.

L. M. LINDSAY

SURGERY

The Treatment of Hallux Valgus and Rigidus.

Jones, Sir Robert, *B.M.J.*, Oct. 11, 1924.

There may be pronounced hallux valgus, even with a bursa, and still no discomfort, but it is important that in the early stages of the deformity the toe can be easily placed in correct alignment. Sir Robert Jones holds that in the vast majority of cases it is the shape of the modern boot that is responsible for the deformity, which begins by being postural and then becomes organic. Both hallux valgus and rigidus are closely associated with flattened arches: in this condition the line of pull of the

extensor proprius hallucis is altered, so tending to produce hallux valgus. A hallux rigidus helps in producing the flattening of the arch by depriving the foot of the free propulsive action of the big toe.

Surgeons should be extremely careful as to prognosis in treatment, and should make sure whether the operation proposed will meet all the indications, such as the bunion, or the callosity under the toe, or arthritis, or irritation of osteophytes. Treatment may be, (a) preventive, (b) mechanical, (c) operative. In the first, attention must be paid to the footwear, to see that it does not encourage deflection of the big toe. A correct boot should fit moderately closely around the ankle and heel, and the inner side of the boot should be straight right up to the tip of the big toe. The sole should be as broad as the foot under the strain of the body weight.

In the mechanical treatment the aim is to relieve the joint from pressure. The sole of the boot should be thick enough to prevent strain on the toe in walking, and there should be a bar of leather placed transversely across it just behind the metatarso-phalangeal range. He has no confidence in toe-posts or external splinting. The heel of the boot should be heightened on the inner rather than on the outer side. If there is no arthritis gentle manipulation prevents the formation of adhesions, and active movements preferably in hot water, should be practiced daily. Absolute rest should be prescribed for an inflamed bursa, and it often happens that when this subsides the deformity is not crippling of itself and operative treatment may be avoided.

He considers four types of operation: (a) removal of the bony prominence on the inner side of the foot, together with the bursa; (b) osteotomy of the neck of the metatarsal; (c) removal of a part or the whole of the head of the metatarsal; (d) removal of the base of the first phalanx. Choice between these depends on the circumstances of the case. Removal of the head of the metatarsal is indicated in extreme cases, associated with bunion and tender joint; this procedure is more suited to the elderly, and should never be performed if less drastic methods can give relief. Where there are osteoarthritic and peri-arthritis changes, it may be necessary to remove about half an inch of the neck, otherwise a painful ankylosis may occur.

In dealing with the young athlete, even in extreme cases, as much as possible of the metatarsal should be retained so as to retain the strength of the arch.

In hallux rigidus the operation of choice is that of removal of the base of the first phalanx. In all operative work treatment must aim at preventing recurrence, and the musculature of the foot should be developed.

H. E. M.

ANAESTHESIA

Blood Pressure Maintenance in Spinal Anaesthesia. Steel, W. A., *J.A.M.A.*, Jan. 10, 1925.

The dangerous time in spinal anaesthesia is

ten minutes after the injection has been made. The drop in blood pressure has, by then, reached its lowest point.

Strychnine, caffeine, pituitary extract and other drugs have been used to counteract this fall, but they have little or no effect. Epinephrin, given intravenously, is the only reliable drug in desperate cases of collapse.

The inhalation of ether raises and maintains the blood pressure during spinal anaesthesia, better than any of the ordinarily employed means. The patient should be kept in the stage of primary anaesthesia for ten minutes.

W. B. HOWELL

Incontinence of Urine in Women.—C. J. Miller states that incontinence of urine is a common occurrence in women and usually follows injuries sustained at labour, though splinteric weakness may be responsible in some nulliparous cases. In 1,000 gynaecological cases collected by Taylor and Watt control of urine was found to be normal in 79.4 per cent and fair in 6.8 per cent; thus in 13.8 per cent there was poor control or incontinence. Multiparity increased the frequency of incontinence, and 45 per cent of patients with prolapse were affected. Miller considers that the cause is doubtful, but is probably an injury of the vesico-vaginal fascia, which, according to Taylor, allows the inferior wall of the urethra to sag. This tends to drag on the sphincter urethrae and to hold it open; the sphincter itself is rarely injured. In these patients the perineum is usually shallow and the anterior vaginal wall bulges on straining. Many ingenious methods of treatment had been devised for this condition, but failed owing to misconception of the cause of the incontinence. The author remarks that modern methods consist in the tightening of the fascia around the vesical neck without attempting to narrow the sphincter, and that these have been eminently successful, especially when Clark's U suture was used to give immediate and later permanent support to the urethra and vesical neck. An anterior colporrhaphy is required in nearly all cases to complete the readjustment of the whole fascial sheath. In cases unsuited

for operation he finds that pessary treatment, preferably the ring pessary, has proved very efficacious, at any rate in the milder type of incontinence, for the weakened fascia is supported and sagging prevented.—*Amer. Journ. Gynecol. and Obstet.*, October, 1924, p. 492.

Spontaneous Rupture of the Kidney.—Roy Biggs Henline, New York, reports what is apparently the only case on record in which a spontaneous rupture of the kidney has resulted in a perinephritic abscess which burrowed its way entirely through the body wall and presented itself as an extravasation of urine in the suprapubic region, scrotum and perineum. He concludes: An impacted ureteral calculus may be present without symptoms, provided the other kidney is functioning properly. Strictures of the ureter exist pathologically as well as clinically, and do not present dilatations above and below the narrowed portion. Spontaneous rupture of the kidney may occur without sudden, sharp pain, indications of internal hemorrhage, or the development of a retroperitoneal tumour. The peritoneum is more resistant to pressure and infection than other body tissues. Localized peritonitis and empyema occur from extraperitoneal and extrapleural infections without rupture. Back pressure into the kidney from incomplete drainage is sufficient to destroy most of the kidney and cause rupture of the entire kidney substance and capsule.—*Jour. A. M. A.*, Nov. 1, 1924.

Obituary

DR. FREDERICK ALBERT LAWTON LOCKHART

Dr. Frederick Albert Lawton Lockhart, associate professor of gynaecology in McGill University, died in the Montreal General Hospital on January 10th, 1925. Born at St. John, N.B. on March 20th, 1864, of United Empire Loyalist stock, Dr. Lockhart spent his early youth in Edinburgh, first as a student at Murchiston School and later at Edinburgh University, from which he graduated as M.B., C.M. in 1890. He returned to Canada shortly after graduation and obtained an appointment on the gynaecological staff of the Montreal General Hospital, which he held until his death and which from the very start, was eventful, for responsibilities piled rapidly upon the shoulders of the young specialist.

Gynaecology was still in its infancy and the General Hospital possessed, thanks to the pioneer work of Professor William Gardner, one of the largest special clinics on the continent. Within a few short years the translation of Professor Gardner to the Royal Victoria Hospital and the death of Dr. J. T. Alloway placed Dr. Lockhart in charge of this department. Early in his career he had become connected with the teaching staff of Bishop's College Medical School but on assuming charge of the department in the General Hospital he resigned from Bishop's College and was placed on the staff of McGill University. An appointment some years later (1906-1908)

as Professor of Surgical Gynaecology in the University of Vermont will serve to explain his wide acquaintance with practitioners in the United States as well as in Canada. Visitors to the clinic at the General Hospital have commented on certain procedures that they considered old fashioned; old fashioned perhaps they were, but performed with a technical skill which more than discounted the criticism. Left to work out his own salvation, Dr. Lockhart developed a clinical dexterity that few others can hope to achieve.

The work was hard and from the man's nature he required a certain amount of recreation but the

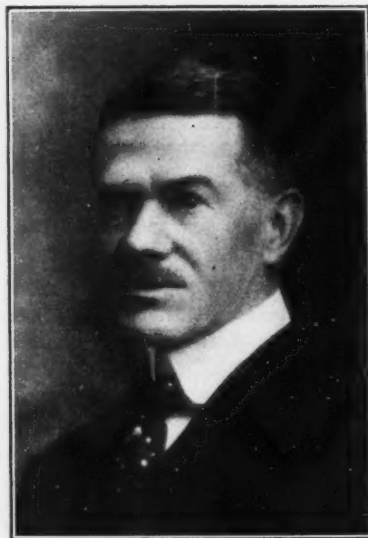
routine was always well done. It was only in an occasional paper that his literary capacity was shown; though many of the larger systems of gynaecology sought his collaboration and in one or two instances obtained it. Dr. Lockhart had a lovable personality and was willing at all times to go to no end of trouble himself to save suffering or spare trouble for others; he will be remembered by a wide circle of friends.

Death came to him when least expected, and one might say casually, as came so many of his earlier experiences. He

was spending a holiday with a friend at the St. Maurice Fish and Game Club in the Laurentians, and on a fine bright day, having insisted that his guest should take the guides and search for big game, he started off to tramp about the country that he knew and loved so well. In returning to the club house toward which he had turned so as to be in well before darkness set in, he took what he supposed was a short cut to the camp, but before he discovered his mistake in the trail it became dark. Of his wanderings during that night he later made light, proudly asserting that none of his friends ten years younger could have gone through it as he did. Unfortunately in crossing a small lake after being out for some twenty-two hours he wet his feet, and in the sharp frost they became frozen, but as a search party came upon him within a short time after this, the accident seemed a slight price to pay for such a night of experience. When he told us later that his feet had been placed

in earth rather than snow, in order to draw out the frost, his remark "New Steffanson stuff" possibly banned from our minds what flashed across them "Flanders' trench feet," and antitetanic serum was not considered indicated. Symptoms of tetanus made themselves evident on the tenth day after the accident, a week after his return to Montreal. In spite of the immediate adoption of the most vigorous treatment he died four days later, conscious practically to the end and with knowledge of and trust in his friends, and unanxious regarding his tryst with God.

H. M. LITTLE



DR. FREDERICK ALBERT LAWTON
LOCKHART

Dr. W. McKay, who formerly practiced in St. Mary's died in New York early in January.

Dr. James F. Gibson, a well known practitioner in Kingston, died on January the 4th.

Dr. Harold M. Clarke, second son of the late C. K. Clarke, died suddenly at Bridgeport, Connecticut, on December 31, 1924. A graduate of Toronto University, Dr. Clarke had been practising surgery for some years.

Dr. Charles Samuel Hamilton who died at Cobourg

on December the 31st, aged eighty-four years, was one of the old names in medicine in the Province of Ontario. Graduating from McGill in 1868, Dr. Hamilton practised in several places before settling in Cold Springs where he carried on active work up to seven years ago.

By the death of Major William Wallwyn, a graduate of Toronto University who died early in January of this year, an unusually interesting and heroic character has been removed. Exceptionally well trained in paediatrics by his residence in Chalmers Hospital, the Royal Infirmary, the Royal Hospital for Sick Children in

Edinburgh, he nevertheless went into active service in the war, reverting to the ranks in order to get to France, and earning there the Military Cross for distinguished bravery. After the war Major Wallwyn began practice in Brussels where he had formerly worked under Dr. DePage, the well-known paediatrician. An illness which began a year ago terminated his activities in practice.

Dr. George McKenzie Bowman, of Winnipeg, died of an embolus in the coronary artery while engaged in a game of curling on the evening of December 16. He was born in Hamilton, Ontario, in 1867, and practiced for a time in Ontario where he was a member of the Ontario Medical Council. Twenty-one years ago he removed to Weyburn, Saskatchewan, where he practiced until September when he came to Winnipeg to take over the practice of the late Dr. C. E. Sugden. Interment took place at Hamilton, Ontario.

Dr. Bowman was at one time president of the Saskatchewan Conservative Association. He unsuccessfully contested seats for both federal and provincial parliaments. He took a keen interest in Sunday School work.

He is survived by his son Melvin, a student at the University of Minnesota, a brother and sister.

Dr. Walter A. Dorion, a well known physician died suddenly at his residence, 164 Drummond Street, Montreal from cerebral haemorrhage. He was born at Waterloo, in this province in 1876, the son of the late Rev. J. A. Dorion. He came to Montreal and studied at the High School, later entering the McGill medical school. He graduated in 1902 and entered the Western Hospital and was superintendent for over a year. He then continued his medical studies in the Universities of Edinburgh and Glasgow. He took a keen interest in sports and was connected as a physician with the Wanderers hockey team. He was a member of the University Club and of the Jovial Fish and Game Club of Buckingham, and of the Mizpah Lodge I.O.O.F. In 1908 he married Miss Janet Rothwell of Ottawa, who survives him with his mother, Mrs. William Neil of Montreal.

Dr. Arthur Robichon died of pneumonia at his home, 276 MacDougall Avenue, Outremont, after an illness of several weeks. He was born in Three Rivers, 43 years ago and was educated in Montreal at St. Mary's College and then studied medicine at Laval University, and later for two years in Europe. Dr. Robichon was surgeon-in-chief of St. Joseph's Hospital at Lachine. He is survived by his wife and eleven children.

Dr. Harry Lorne Pavey of Montreal died with tragic suddenness of heart disease on Jan. 2nd. He was born in London, Ontario, forty-seven years ago. He graduated in medicine at McGill University in 1903 and since that time, except for several years when he served during the war, he practised his profession in Montreal. He was attached to the Faculty

of Medicine and did very faithful work in the Medical Out-door Department of the Royal Victoria Hospital. The funeral was held at the Church of St. James the Apostle and was largely attended by his colleagues in the University and in his profession, and by officers of the Victoria Rifles of Canada. He is survived by his widow and four children.

Dr. John Hunter, of Sydney, Australia, who died in London had been invited to America by Dr. W. J. Mayo and Dr. Franklin Martin to deliver the John B. Murphy oration in Surgery at the clinical congress of the American College of Surgeons held in New York, October 20th, 1924. His address on "Spastic Paralysis" created unusual interest among all members of the profession. After the New York meeting Dr. Hunter visited some of the more important medical centres in America including several Canadian universities, and sailed about the middle of November for London. On receiving word of his death Dr. Franklin Martin cabled Dr. Elliott Smith of University College, London, for details of his illness, and received the following letter which gives some facts which did not appear in our obituary:

December 16, 1924.

"Dear Dr. Franklin Martin:

"In reply to your cablegram which has just reached me, I can tell you in a few words of the little there is to say about the terrible tragedy of poor Hunter's death. He arrived in London on 22nd November, apparently in exceptionally good health and full of energy. He threw himself at once into the business of demonstrating his work of the physiologists and clinicians in London, and gave a number of lectures, and was going to start a more formal course on 8th December. On 3rd December he went up to Cambridge, and was very busy there with informal discussions as well as public lectures. He returned to London on 6th December because he was not well. On the following day, 7th December, it was found that he had a temperature of 104.6° and I got our best physician, Dr. Charles Bolton, to see him, and he sent him into hospital suffering from the most virulent form of enteric that Dr. Bolton had ever seen. His temperature remained at about 105° until the 10th December, when signs of cardiac failure showed themselves, and he died on that day. He was delirious a good part of the time and almost unceasingly talked about his experimental work. It appears that he had been ill from 1st December, but took no notice of it; as he was so absorbed in the task of convincing people here of the truth of his results that he went about for six days after the onset of the illness without realizing that he was seriously ill. He must have got the infection soon after leaving Quebec on 14th November. The whole business is unspeakably tragic, because he was certainly the most promising anatomist that we had, and I feel convinced that if he had been spared, he would have been perhaps the biggest figure in scientific medicine of the present generation.

Yours very truly,

(Signed) G. ELLIOT SMITH,

Professor of Anatomy."

Diabetes Mellitus Complicated by Lipemia Retinalis and Xanthoma Diabeticorum—Thirty-one cases of lipemia retinalis have been reported; and eighty-one cases of xanthoma diabeticorum. The case presented by Samuel A. D. Machlis, Chicago, adds one instance to each series. Under intensive insulin-glucose-alkaline therapy, the patient rapidly recovered from coma, and, as soon as possible, he was

given food in calculated amounts; appropriate hypodermic administration of insulin was continued. The lipemia retinalis disappeared, coincidentally with a full return of vision, although the patient was virtually amaurotic even when he came out of coma. The skin lesions gradually disappeared in a month, leaving rosy macules in their place.—*Jour. Am. Med. Ass.*, Nov. 1, 1924.

Association Notes

ANNUAL MEETING REGINA, 1925

Arrangements for the Annual Meeting at Regina, in June, are proceeding satisfactorily. The Executive Committee, under the chairmanship of Dr. Low, President Elect, is meeting regularly and much of the preliminary work is well under way. The Committee arranging for exhibits has had a most encouraging response. Practically all the available space for commercial exhibits has been taken up.

In a recent communication from Dr. Routley to the Programme Committee, it has been announced that many of the prominent members of our profession, both in this country and abroad, who had been requested to address our meetings, have signified their intention of being present.

The first circular letter regarding the meeting

will be issued in a few days and will contain some further general information.

The Regina Society is well pleased with the progress of its plans to date and also gratified to learn from various sources of the interest already being shown throughout the country, in this coming meeting.

Any inquiries for information, etc., may be for the present directed to Dr. M. R. Bow, the General Secretary, care of The General Hospital, Regina.

Through the Executive Committee of the Canadian Medical Association the members have received a very cordial invitation to attend as guests the Annual Meeting of the American Medical Association to be held in Atlantic City during the week of May 25th., 1925.

Splinting and Psysiotherapy in Infections of the Hand.—Allen B. Kanavel, Chicago, has found that the immediate problem of overcoming an infection of the hand is so likely to overshadow the question of the ultimate function that the surgeon may neglect what to the patient is the paramount consideration. Incisions properly made are of great importance; but, from the inception of the treatment, procedures should be instituted that prevent adhesions and disability. The fingers and hand should have both active and passive movements daily, at least after the first forty-eight to seventy-two hours. Hot moist dressings should not be continued after the danger of spreading is ended; generally two or three days after incision will suffice. Attention to this detail will lessen the amount of round cell infiltration. After hot wet dressings are discontinued, baking under an electric light or therapeutic lamp for a half hour three times daily will help to overcome the infection as well as to reduce the congestion. One of the most important factors in the care of infected hands is the maintenance of the hand in the "position of function" throughout the treatment. The hand should never simply be surrounded by hot dressings

and permitted to lie in an extended position. It should be maintained in dorsal flexion at the wrist at an angle of 45 degrees; the phalanges at the metacarpophalangeal and phalangeal joints should be flexed to the same angle, and, most important, the thumb should be abducted from the palm and adducted toward the ulnar side of the hand, and rotated so that the flexor surface of the thumb is opposite the flexor surface of the index finger. This position should be maintained throughout the treatment except when the hand is undergoing physiotherapy. It may be secured by various means. Kanavel describes various splints that he has used with good results. The physiotherapy consists, in brief, of massage of scar tissue, diathermy, development of muscle function by massage, stimulation with the galvanic and faradic current, and passive and active motions. The use of apparatus, devices, of machines directed to the same ends, as, for instance, the use of the typewriter, the piano, dumb-bells, pulleys and ladders, in fact any device that will stimulate the patient to use the hand in a purposeful manner and sustain his interest is of the utmost importance.—*Jour. Am. Med. Ass.*, Dec. 6, 1924.

Medical News from the British Empire

GREAT BRITAIN

The following extract is taken from an address by Dr. Alfred Cox, Secretary of the British Medical Association.

MEDICAL PROGRESS IN THE DOMINIONS

I do not think we fully realize the great progress, medically speaking, that is being made in the Dominions. Speaking for myself, I was ignorant until this present year that the Canadian hospitals and medical schools are as good as anything we can show them, and that this applies also to the character of the work done in them. The late Sir William Macewen, who visited Australia last year, came back with a glowing account of the capacity of the profession in that country and the great strides it is making in medical science and education. Similarly, Sir John Lynn-Thomas, who acted as our delegate to a medical congress in New Zealand at the end of last year, brought back a vivid story of the good work that he saw there, of the energy and capability of the medical profession of that country, and of their desire for closer union with us at home. I can give no such first-hand or recent account of what is going on in South Africa, but reading its medical journals and conversing with representatives who visit this country is enough to convince one that that Dominion is very much alive medically; medical schools are in operation, and first-class work is being done in all departments of medicine.

THE NEED FOR POST-GRADUATE FACILITIES

We shall have to look to our laurels. All observers agree that our brethren overseas are keener than we are on post-graduate education, and my experience is that nearly every one of our visitors from overseas, if he does not come specially or entirely for educational purposes, has a strong disposition to combine professional education with pleasure. I suggest that we ought to do much more than we have ever done to provide post-graduate facilities for our overseas members when they come to this country, or, if not to provide them ourselves, to take a very active and prominent part in the movement for making post-graduate medical education of all kinds far more easily available than it now is. And not only for our overseas visitors, of course. Our members at home must be better catered for. If the fundamental object of the Association is to make its members better doctors we shall have to do more than we now do, spend much more money than we now do, organize far more than we now do on the educational side. Considering how fine are the facilities for the education of the medical student, it is a standing reflection on us as

a nation and as a profession that we have not at least as good a post-graduate school as any country in the world. At present—to judge by what nearly every overseas visitor of experience informs me—we compare badly with Germany, Austria, and the United States.

Briefly, in my view the next great phase in the evolution of the Association will be a considerable development of our sense of responsibility for the education of our members after they have passed the rubicon of the examination halls, of our sense of responsibility as an Association to the community from which we demand and are obtaining more and more recognition, and of our responsibility for the maintenance of a high standard of professional competence and honour among our members.

Very recently the Prince of Wales, as President of Guy's Hospital, spoke in approval of an appeal for £200,000 at a special court of the governors held at St. James' Palace. The appeal, he said, coincides with the 200th birthday of the hospital. It was on January 6th, 1725, that the hospital founded at the sole cost and charges of Thomas Guy, Esquire, was first opened for the reception of the sick and infirm. The hospital has never made repeated calls upon the public for maintenance, a policy which was endorsed by the late King Edward, who inaugurated the re-endowment fund in 1896. Had it not been for the war its purpose would have been achieved, and the hospital's income, together with regular grants from other sources, would have enabled it not only to carry out its regular work free from debt, but to complete the various building schemes which had now proved so expensive. Since 1895, £448,000 has been spent by Guy's Hospital on new buildings and equipment necessary to maintain its efficiency, including among other items a nurses' home, a new out-patient department, new operating theatres, a massage and electrical department, and a Finsen light and radiographic department. Towards this amount £344,000 has already been raised, leaving a debt of £104,000. In addition to this amount, however, there is a deficit on maintenance of £52,000 and a debt on the new medical school building of £40,000. Such is the state of affairs necessitating the new appeal for £200,000.

The apparatus in the deep x-ray therapy department, of which an illustration appears in the *London Illustrated News* of Jan. 3rd, was installed at his own expense by Dr. Watt of Manitoba for the treatment of cancer in cases where operation is impossible. The ultra-violet rays which are equivalent to artificial sunlight are described as having had amazingly successful results in the treatment of rickets in young children.

AUSTRALASIA

A Royal Commission has been appointed to inquire into questions relating to the preservation of health of the people in Australia.* The Commission consists of five members, one of whom is a woman representative, Dr. Jane S. Greig of the Department of Education in Victoria; the Government chooses three members and the British Medical Association one.

* (N.B.—Notice has already been taken in these columns of this proposed reform.—ED.)

It is stated that "the first and most important matter will be the consideration of the best way of coordinating the administrative control of the health legislation by the Commonwealth and State Governments. In close connection with this inquiry will be the investigation of the relationship between the health departments and the other departments of the several Governments. This will necessarily raise many questions concerning the division of responsibility for

the administration of health laws between the Commonwealth Government, the Governments of the States and the local health authorities. The prevention of the spread of infective disease, the improvement of sanitation, the exercise of control over the purity of food and drugs, the preservation of health of mothers and their infants and the development of industrial hygiene will necessarily engage the attention of the Commission. An attempt will be made to suggest means whereby the medical profession as a whole may be brought into close relationship with the health authority and the services of the general practitioner may be utilized for the prevention of disease and the

raising of the general standard of the health of the community."

As regards the personnel of the Commission, favourable comment is made of the fact that of the five members only one is a departmental medical officer, "and that member... is well known to be a frank critic of existing departmental methods. Four of the five are distinguished members of the medical profession." It is suggested, however, that the Government would have done well to select as the fifth member some well known financial expert, for the Commission will have to face problems of the expenditure of large sums of money. H. E. M.

News Items

GENERAL

ABSTRACT OF REPORT OF

Libel Suit brought by the Drisgo Laboratories against Dr. H. A. Farris, Medical Superintendent of the St. John County Hospital for Tuberculosis; abstracted from the St. John Telegraph-Journal, November 17—December 1, 1924.

This legal case of much interest to the medical profession was heard in St. John, N. B., in November, 1924. We have already referred to it in our January number*. The Drisgo Laboratories sued for libel Dr. H. A. Farris, Superintendent of the St. John County Hospital for Tuberculosis. Dr. Farris had written a short article† on "Quackery in the treatment of tuberculosis" in which it was assumed he had referred to this preparation put up by the Drisgo Laboratories as a "fake cure." The character of the action and the eminence of the counsel employed created special interest in this suit. The plaintiffs in their statement insisted Dr. Farris had libelled the medicine and the firm, and also claimed that this medicine was of definite value, and this necessitated their producing proof to this effect. The plaintiffs put on the stand Mr. J. Harry Driscoll, one of the firm of the Drisgo laboratories. He admitted that he was carrying on a drug business, although he was not at the time a licensed druggist. Mr. Goguen had brought to his attention the medicine which he claimed was helping him, and in which he became interested. Mr. Driscoll stated that he had tried this medicine on a number of patients under the supervision of Drs. McCourt and Comeau. Mr. Goguen had given him the constituents of the medicine, and he had prepared it in such a form as to make it saleable. Mr. Goguen arranged the size of the dose. He swore that only he and the members of his firm knew what was in this medicine.

Mr. Frank Goguen, a partner in the firm, swore that he heard of this remedy being used when he was a boy, but had not thought of it since, until becoming ill, he had recalled the remedy and tried it upon himself. He fixed the dose at a dessertspoonful. This dose he had arrived at by knowing the amount he took himself and by no other means. He denied any knowledge of drugs. He stated that he could not read nor write English, but could read and write a little French. He told of an injury he had received while working as a stevedore, and how it was discovered that he had tuberculosis. He claimed that Dr. Farris had told him he was a very sick man. He stated that he was now well and had been working since last December, and considered that the medicine had made him well. He stated that he assisted in putting up this medicine although he

had no knowledge of drugs. Dr. McCourt was called to the stand, and stated that he knew what was in this medicine and had observed the good effect it had had on Mr. Goguen. This was his chief reason for thinking it of value. He had never examined Mr. Goguen until after he had started using the medicine, and had only examined him once. After that he prescribed the medicine for a number of patients. He kept no complete records; he had never taken the temperature, weighed the patients, or had their sputum examined. He said that he believed the sputa of these patients had been examined at the free dispensary. On cross examination he said that he did not consider the medicine had been sufficiently tried to enable him to state that it was a valuable preparation in the treatment of pulmonary disease. Dr. Comeau was then put on the stand. He stated that he did not know what was in the medicine. He had some notes on a few of his patients but no complete records, but he mentioned a number of patients whom he considered had improved under this treatment. At the same time he told his patients to rest and take good food. On cross examination he stated that he did not have sufficient data to state whether the medicine was beneficial or not. After this several patients were put on the stand and expressed their belief that the medicine had been of value to them. During the plaintiffs' presentation of their case, owing to the long drawn out evidence, a request was made by H. A. Powell, K. C., and the judge adjourned the court in order that a commissioner could examine the statements of several specialists, Dr. Reginald MacLean, Dr. H. A. Lafleur and Dr. Parfitt, in order that they might return home. The evidence thus taken at commission was presented at the outset of the defendant's case. Dr. Reginald MacLean testified in reference to an analysis of the medicine which he had made. Dr. MacLean had not his notes, and stated his facts from memory: The medicine was found to contain 90 per cent of water, 7 per cent of alcohol, and 3 per cent of solids; the solids contained a little of some salt of lime and resin, with tannic acid; it contained nothing of any definite medicinal value. He had injected intravenously into a guinea pig a dose equivalent to twenty times that prescribed and saw no effect. He took ten times the dose prescribed and also felt no effect. The evidence given by Dr. H. A. Lafleur and Dr. J. H. Elliott went to prove that the only known treatment for tuberculosis was rest, fresh air and good food, with such symptomatic treatment as may be required. Dr. Lafleur stated that this medicine according to the analysis given by Dr. MacLean would have the effect of a mild cocktail, and might be a mild gastric stimulant, but would have no other value. Dr. Farris was on the stand for several hours, and showed complete charts and records of a large number of the patients who had been put in evidence by the plaintiffs as cures. His charts showed that the reports as stated

*See January issue, page 89.

†In a small magazine published by and for the patients past and present, of the sanatorium.

by the patients themselves were misleading. One of the patients, a star witness for the plaintiffs, had never shown sufficient signs on which to diagnose the presence of tuberculosis. He agreed with Dr. Kirkland's x-ray report that the woman had no definite tuberculosis but only a chronic tonsillitis. Dr. Parfitt was called and was on the stand several hours. Great interest was manifested in his statements not only by the judge and jury but by the large audience present during the testimony. With the reading of Dr. Lafleur's and Dr. Elliott's evidence, and through Dr. Parfitt's statements, much valuable information was given to the general public which should enable them to take a more rational view of the diagnosis and treatment of tuberculosis. The Hon. Dr. Baxter, in his address to the jury, summarized the defendant's case. He called the attention of the jury to the fact that Mr. Goguen could not read or write English, that he had recalled the medicine after the lapse of many years, having never thought of it in the meantime; that he had put up this medicine and regulated the dose although he knew nothing whatever of drugs. He stated the plaintiffs had produced no witness who had given conclusive proof that they had been benefitted by this medicine; many of them had no tuberculosis at all; perhaps, others had been to some extent benefitted by mental suggestion. He warned the jury that the plaintiffs had laid much stress on the fact that this medicine had been licensed by a Board in Ottawa of expert and reliable men, but the law definitely stated that these men did not pass on the virtue of the medicine. He referred to the Drisgo Laboratories in the back shop of a drug store, run by a man who was not a licensed druggist. He compared the interest shown in public welfare by him with that of Dr. Farris who is devoting his life to the work, and asked the jury to decide for themselves which was the one acting in the public interest.

Honorable Dr. Pugsley addressed the jury for over two hours. He claimed that Dr. Farris wrote this article not knowing what was in the medicine and making no attempt to find out what was; that the only proof of the value or not of the drug was the enthusiastic praise of patients. He stated that if Dr. Farris did not know what was in the medicine, Dr. Farris had lied to the public and he could scarcely believe he would do that. He emphasized the fact that his clients had never claimed this medicine was a cure, but they believed it to have a splendid tonic effect and that all had admitted this was valuable in the treatment of tuberculosis. He emphasized also the fact that many of the discoverers of medicine had been ignorant men. He stressed very strongly the prominence and reliability of the men on the Board at Ottawa, who pass upon patent medicines and stated that such men would not pass upon an improper or harmful medicine. He criticized very strongly Dr. MacLean's analysis of the medicine, claiming he gave this report from memory and did not have his original notes with him and that he had left his original notes home in order to avoid perjury as he was guessing the contents of the medicine. He appealed to the jury to give whatever verdict they considered right; the plaintiffs had sued for one thousand dollars, but the matter of money was a small item as his clients only wanted vindication. He claimed that "fake cure" was a cure that was put up wilfully knowing it to be false and the defendant would have to prove that the plaintiffs knew that this medicine was of no value and his clients were claiming it to be something it was not.

The Judge in his address to the jury showed that a libel did not have to give the specific names in order to be a libel, but the statements would have to be made in such a way that the public would directly know who was meant or could readily ascertain who were the parties implied. If this medicine was libeled and claimed to be a fake cure then this by innuendo involved the Drisgo Laboratories as a company and not as individuals; that the matter of individual libel would have no effect

on this suit as this suit was taken up by the Drisgo Laboratories, and only the libel against the company would be considered; as no special damages had been shown during the trial the jury could disregard this entirely. He stated that as there was no dictionary definition of the term "fake cure" the meaning of this term must be understood to be the meaning recognized by the average intelligent layman, and it was for the jury to decide what they considered the term "fake cure" meant. The plaintiffs had declared that they had never called this a cure and the defendant had produced three witnesses who had sworn that the plaintiffs had described it as a cure.

Here Dr. Baxter interposed the remark that one of their own witnesses had gone into the store and asked for a bottle of the medicine that would cure tuberculosis and Drisgo had been sold to him. The Hon. Mr. Baxter said that if they believed these witnesses were told it was a cure, the jury's duty would be easy to perform. Dr. Farris in his article had claimed it was a fake cure, fake remedy and was of no value whatever. If they believed this had been proved then justification was established, if not they would have to find for the plaintiff. He did not consider that privilege need be considered in this case as it was not a part of Dr. Farris' duty to warn the public of fake medicines. As the plaintiffs had worded their statement it was necessary for them to prove that this medicine had been of value in the treatment of tuberculosis. He warned the jury that there had been a great deal of talk about the able reliable men on the Board at Ottawa passing upon this medicine; the law stated that it was not their duty nor their right to pass upon the virtue of any medicine. He accepted Dr. MacLean's evidence of the analysis as correct as this had not been disputed by the plaintiffs. He thought it might have been better if Dr. MacLean had given his report from a written report but where he was able to give this from memory he saw no objection to him doing so. He summarized the evidence given by Drs. Lafleur, Elliott and Parfitt and referred to Dr. Farris' evidence in some of the cases who had been brought forward. He left the case very hopefully to the decision of the jury.

The jury retired and in less than ten minutes returned. The foreman, when asked for the verdict, said "unanimously not guilty." Enthusiastic applause from the audience was quickly silenced by the constable. The costs were not assessed at the time, but later the Judge stated that these went with the verdict.

The court room was filled daily with prominent people; the newspapers devoted much space to it; that the sympathy should have been so one-sided was remarkable even in a case like this. One of the surprising facts was the interest and sympathy that was shown by the druggists who, almost without exception, were with Dr. Farris.

It is hoped that this suit has done good in that while it extended over a period of two weeks every day the court room was filled and much information regarding tuberculosis was being disseminated.

An outstanding circumstance in the trial was the fact that it proved in such a libel suit the formula could be demanded, and this in the future should do much to deter patent medicine companies from starting libel suits.

INTER-STATE POST GRADUATE ASSEMBLY CLINICAL TOUR OF AMERICAN PHYSICIANS TO CANADA, BRITISH ISLES AND FRANCE, LEAVING IN MAY, 1925

The clinics and demonstrations connected with this tour will include all the different branches and specialties of medical science.

Officers of the Tour.—President, Dr. Charles H. Mayo, Rochester, Minnesota; Chairman of the Orientation Committee, Dr. Addison C. Page, Des Moines,

Iowa; *Director of the Tour*, Dr. William B. Peck, Freeport, Illinois; *Secretary*, Dr. Edwin Henes, Jr., Milwaukee, Wisconsin.

American Advisory Committee on Clinical Arrangements:—Dr. William J. Mayo, Mayo Clinic, President of Clinics, Rochester; Dr. Edward William Archibald, Prof. of Surgery, McGill University, Montreal; Dr. Walter W. Chipman, Prof. of Obstetrics and Gynaecology, McGill University, Montreal; Dr. George W. Crile, Prof. of Surgery, Western Reserve University, Cleveland, Ohio; Dr. John B. Deaver, Prof. of Surgery, University of Pennsylvania, Philadelphia; Dr. John M. T. Finney, Prof. of Surgery, Johns Hopkins University, Baltimore; Dr. Duncan A. L. Graham, Prof. of Medicine and Clinical Medicine, University of Toronto, Toronto; Dr. Allen B. Kanavel, Prof. of Surgery, Northwestern University, Chicago; Dr. Charles F. Martin, Prof. of Medicine, McGill University, Montreal; Dr. Charles H. Mayo, Mayo Clinic, Rochester; Dr. Alexander Primrose, Dean and Prof. of Clinical Surgery, University of Toronto, Toronto; Dr. Clarence L. Starr, Prof. of Surgery, University of Toronto, Toronto.

May 17.—The tour will start from Chicago by special trains. Physicians living in territory where it will be more convenient to go direct to Toronto will be provided with transportation direct to that city.

May 18, 19.—The time will be spent in the clinics of Toronto, the physicians being the guests of the members of the teaching staff of the University of Toronto.

May 20.—Trip through the Thousand Islands and the St. Lawrence Rapids.

May 21, 22.—The physicians will attend the clinics of Montreal as the guests of the members of the teaching staff of McGill University.

May 23.—Sail for Liverpool, arriving in that city May 31st.

An intensive professional trans-Atlantic program will take place on board ship contributed by some of America's most distinguished physicians.

June 1 to 7.—The physicians will be entertained in London. The clinical arrangements in London are under the direction of the Honorary Organizer, Mr. Philip Franklin, Honorary Secretary of the Laryngological Section of the Royal Society of Medicine and Medical Director of the American Hospital, London; Sir John Bland Sutton, President of the Royal College of Surgeons; Sir Humphry Rolleston, Bt., President of the Royal College of Physicians; Sir William Arbuthnot Lane, Bt.; Sir St. Clair Thomson, President of the Royal Society of Medicine; Sir William Hale White, Retiring President of the Royal Society of Medicine; Mr. H. I. Waring, Vice-Chancellor of the University of London and Mr. W. Girling Ball.

The social features of the London visit will include the conferring of Honorary Memberships upon H. R. H. Duke of York at the opening ceremony, which will be held at Barnes Hall, Royal Society of Medicine. Honorary Memberships will also be conferred upon the Prime Minister, the Rt. Hon. Stanley Baldwin; the Minister of Foreign Affairs, Rt. Hon. Austen Chamberlain; the Minister of Health, Rt. Hon. Neville Chamberlain; Sir Auckland Geddes; the American Ambassador, the Lord Mayor of London, Sir Humphry Rolleston, Bt., Sir John Bland Sutton and Sir St. Clair Thomson at a banquet given to the American physicians at the Hotel Cecil on the evening of June 5th.

Receptions and luncheons will be given by the Lord Mayor of London, the Presidents of the Royal Societies of Medicine and Surgery, the English-speaking Union, the Pilgrims' Society, American Chamber of Commerce and members of the British Government. Arrangements are under way for a garden party at Lady Astor's Riverside House near London.

June 8, 9, 10.—The physicians will visit the clinics of Liverpool, Manchester and Leeds, alternating among these cities.

At Liverpool, the clinical arrangements are under the direction of Sir Robert Jones, R. E. Kelly, F.R.C.S. and colleagues.

At Manchester the clinical arrangements are under the direction of Sir William Milligan and associates.

At Leeds, under the supervision of Sir Berkeley Moynihan and associates.

June 11, 12.—The physicians will visit the clinics of Dublin, where arrangements are under the general management of Sir William DeCourcy Wheeler, Sir William Taylor, Sir Arthur Ball, Sir Robert Woods and their colleagues.

June 13, 14, 15.—The physicians will be the guests of the members of the teaching staff of Queen's University of Belfast. The following committee of arrangements has been appointed and accepted to arrange clinics and demonstrations: Prof. Andrew Fullerton, Mr. Thomas Sinclair, Prof. W. W. D. Thomas, Prof. R. J. Johnstone, Prof. C. G. Lowry, Prof. J. E. MacIllwaine, Dr. A. J. Craig, Dr. H. Hanna, Prof. Symmers, Dr. Thomas Houston and Dr. S. Boyd Campbell.

In presenting the clinics and demonstrations the teaching staff of Queen's University will be associated with that of the Royal Victoria Hospital.

June 16, 17.—The physicians will be in Glasgow, where clinics are now being arranged by Mr. Farquhar Macrae, Mr. J. H. Pringle, Dr. Findlay Cowan and Dr. John Patrick and their colleagues. On these dates excursions will be run to Ayr for families of the doctors and their friends.

June 18, 19.—The physicians will be guests of the Royal Infirmary of Edinburgh. Clinics are being arranged by Sir Harold Stiles, Sir Norman Walker, Sir Robert Philip and associates on the staff of the Royal Infirmary.

June 20.—The physicians will visit the clinics of Newcastle and the University of Durham. Mr. George Grey Turner, F.R.C.S., Sir Rutherford Morrison and other members of the staffs of the hospitals and clinics of this city have charge of the clinical arrangements.

June 22 to 27.—The time will be spent in Paris. The arrangements of the special clinics and social functions here are under the supervision of Professors Tuffier, de Martel, Gosset and Delbert in surgery; Drs. Sebilean de Fourmentel and Lermoye in Oto-Rhino-Laryngologie; Drs. Vidal, Chauffard, Sergeant, Levaditi and Martin in medicine, and Prof. Morax and Delaperonne in ophthalmology.

Social features include: A reception given by the Academy of Medicine; a large reception given in honour of the American physicians by the Municipal Council of Paris at the Hotel de Ville (City Hall); an evening reception by the Inter-Allied Assembly and a reception by Prof. Tuffier at his country home, which is located near Versailles.

June 28.—First sailing for home.

July 4.—Second sailing, permitting physicians to attend the clinics at Lyon and Strassbourg.

In addition to the main tour an opportunity will be given to the physicians to visit practically all the clinical centres of Europe through extension tours.

	Prices	Chicago	Montreal
		to Chicago	to Montreal or New York
(c) with first-class, high grade hotels and cabin ocean passages		\$990.00	\$880.00
(b) with first-class, medium grade hotels and cabin ocean passages		910.00	800.00
(a) with moderate priced hotels and third-class ocean passages		750.00	640.00

It is necessary in order to reserve space for the tour to send to the office of the Managing-Director the sum of \$65.00 per person. This amount will be applied on the price of the tour and if for any reasons, the applicant for space finds that he cannot go, the money will be refunded immediately, if demand is made within six weeks of sailing time. The reservations will be assigned and preference given on the ship and in the hotels in the order they are received, accompanied with cheque for \$65.00 per person.

This tour is open to members of the profession who are in good standing in their State or Provincial Societies and their families. No restriction of territory. This invitation is understood to be extended to Canadian physicians as well as those of the United States. The Association will also be able to take care of a limited number of lay friends of the physicians. The lay friends will be afforded every advantage offered the physicians, excepting attendance upon the clinics.

For further information, write Dr. William B. Peck, Freeport, Illinois.

BOYLSTON MEDICAL PRIZES OF HARVARD MEDICAL SCHOOL

The Boylston Medical Prizes, which are open to public competition, are offered for the best dissertation on questions in medical science proposed by the Boylston Medical Committee. The Committee is appointed by the President and Fellows of Harvard College. The names of the Committee appear in the annual catalogue of the Harvard Medical School. A prize of five hundred dollars and the Boylston Prize Medal is offered every three years for the best dissertation on the results of original research in medicine, the subject to be chosen by the writer. The Boylston Prize Medal will be added to the money prize only in case the winning essay shows special originality in the investigations detailed. In awarding these prizes, preference will be given to dissertations which exhibit original work; if no dissertation is considered worthy of a prize, the award may be withheld. Dissertations entered for this prize must be in the hands of the Secretary on or before December 31 of the year in which the prize is offered. Each dissertation must bear, in place of the author's name, some sentence or device, and must be accompanied by a sealed packet, bearing the same sentence or device, and containing the author's name and residence within. *Any clue by which the authorship of a dissertation is made known to the Committee will debar such dissertation from competition.* Previous publication of the work, if in form to give a clue to authorship, will debar from competition. Dissertations must be printed or typewritten. All unsuccessful dissertations are deposited with the Secretary, from whom they may be obtained, with the sealed packet unopened, if called for within one year after they have been received. By an order adopted in 1826, the Secretary was directed to publish annually the following votes:—(1) That the Board does not consider itself as approving the doctrines contained in any of the dissertations to which premiums may be adjudged. (2) That, in case of publication of a successful dissertation, the author be considered as bound to print the above vote in connection therewith. The address of the Secretary of the Boylston Medical Committee is Dr. Henry A. Christian, Peter Bent Brigham Hospital, Boston, Mass.

The Executive Committee of the Canadian Public Health Association wish to express their regret at the circumstances which made impossible the holding of the Annual Congress of the Association in Montreal during early winter, as intended, and necessitated its postponement until June, 1925, in the same city. The tentative programme already arranged is briefly as follows. Four subjects of paramount interest have been selected, and a committee has been appointed to make an exhaustive study of each. They will report

their findings and suggestions to the annual meeting, each subject taking one session of the Conference. The various phases of each report will be presented by those of the committee present, and the fullest discussion will be encouraged. The various subjects and the chairmen of the committees are as follows: "Infant and Maternal Mortality," Dr. S. Boucher, M.O.H., Montreal; "Municipal Health Administration," with special reference to its application to small urban and rural districts, Dr. J. W. S. McCullough, Chief Health Officer for Ontario; "Milk Problems," Dr. M. M. Seymour, Commissioner of Health for Alberta; "Public Health Nursing," Dr. H. E. Young, Chief Health Officer for British Columbia.

It is urged that all members having something to contribute on any of these subjects should send their contribution to the Chairman of the Committee interested.

WINNERS OF MODERN HOSPITAL'S ESSAY CONTEST ANNOUNCED

Mr. Edward A. Fitzpatrick, dean of the graduate college and educational director of the hospital college of Marquette University, Milwaukee, Wis., received first prize in The Modern Hospital Publishing Company's essay contest on "The Interrelationships of Hospital and Community," which closed November 1. Three awards of \$350, \$150, and \$100, and three honourable mentions were made. Second and third prizes went to Dr. Lucius R. Wilson, Assistant Superintendent, Barnes Hospital, St. Louis, Mo., and to Dr. D. L. Richardson, Superintendent, Providence City Hospital, Providence, R.I., respectively.

The committee of award of the contest was composed of three outstanding leaders in the hospital and public health field; Dr. Haven Emerson, Professor of Public Health Administration, Columbia University, New York, N.Y., Chairman; Dr. Michael M. Davis, Jr., Executive Secretary, Committee on Dispensary Development of the United Hospital Fund of New York, and Dr. Willard C. Rappleye, Superintendent, New Haven Hospital, New Haven, Conn.

The Life Extension Institute whose home office is in New York City has opened offices in the New Chamber of Commerce Building, Boston, at the beginning of the year. The Institute will establish in this new office a life extension examination unit similar to that which has been established in New York City with standard examination rooms and complete x-ray and laboratory departments. The Institute has an Advisory Board in Boston consisting of Drs. Richard C. Cabot, Stephen Rushmore, Alexander S. Begg, Charles F. Wilinsky, George H. Bigelow, James S. Stone, George S. Derby, Hilbert F. Day, and Richard H. Miller. The members of this Board do not conduct examinations or give advice to individuals taking the service. They act as counsellors to the Institute in standardizing the work and keeping the service on a high professional plane. The Institute is a semi-philanthropic organization founded upon a self-supporting basis. It is not a private commercial organization but is carrying on a national movement in promoting the public health, and in this work will be deeply grateful for the interests and co-operation of the profession. A visit to the headquarters in Boston is cordially extended to any member of the profession in Canada.

We note that at a recent meeting of the incorporators of the society, Friends of Medical Progress, official action was taken to change the name of the organization to the American Association for Medical Progress, Inc. The Society is planning this year to increase in a marked degree the scope of its activities. The response to the work thus far undertaken has

been so far beyond expectations that it is considered to be impossible to continue operations with the limited staff and resources which have been available this year. The board of directors decided that the society should move its headquarters to New York City, where co-operation with the more important health organizations would be facilitated. They have furthermore appointed Mr. Benjamin C. Gruenberg as managing director. He will devote his full time to the work, and will have under him both in the home office and in the field a staff sufficient to carry out a broad educational programme. These increased activities will necessarily call for an outlay of funds greater than those which have hitherto been at their disposal, and contributions are requested. The Board of Directors whose address will be 370, 7th Avenue, New York City, will be glad to receive any suggestions regarding this increased programme of service.

The American Laryngological, Rhinological and Otological Society has completed arrangements for its 1925 convention which will be at Atlantic City in The Ambassador Hotel, May 22-25. The American

Proctologic Society and the Association for the study of Internal Secretion will meet in the same hotel directly after the above named societies finish.

We note that a report was laid before the General Medical Council of Great Britain, on the question of reciprocity with Saskatchewan, which may be of interest to Canadians generally. A clause of the provincial act relating to British registration had been altered, apparently under a misapprehension. In a letter dated October, 1924, the Council informed the College of Physicians and Surgeons of Saskatchewan that, as the Act had been amended contrary to the agreement come to when reciprocity with the province was established, it would be the duty of the Executive Committee to report to the Privy Council that a case had arisen for reconsidering and, if so advised, rescinding, the order applying Part II. of the Medical Act, 1886, to Saskatchewan. The Council agreed unanimously to a resolution to that effect, provided no satisfactory reply was received from the College by January 1st. We are informed that no action has yet been taken by the Medical Council of Saskatchewan.

NOVA SCOTIA

At the last meeting of the Valley Branch of the Medical Society of Nova Scotia papers were read by Dr. H. B. Atlee, of Halifax, on "Abnormal Uterine Bleeding"; Dr. T. B. Acker, of Halifax, on "Interpretation of Back Pain," and Dr. A. R. Campbell, of Yarmouth, on "Surgical Headaches." Dr. T. A. Lebbetter, of Yarmouth, reported a series of cases of erysipelas treated with notable success by the subcutaneous or intramuscular injection of milk. Dr. H. A. Chisholm, of the Provincial Department of Health, outlined a plan for dealing more fully with the tuberculosis problem, and Dr. S. L. Walker, of Halifax, urged more active interest in public health matters by members of the profession.

The Colchester Memorial Hospital Trust have selected a site for a new hospital building at Truro, and propose to proceed to the erection of a thoroughly modern structure at an early date.

Dr. N. B. Dreyer, formerly of the Institute of Physiology, University College, London, has accepted an

appointment in the Department of Physiology, Dalhousie University, and has taken on duty. Dr. Dreyer has taught also at Oxford and at St. Bartholomew's Hospital Medical School. He has done much research work, especially with Professor Straub, at Munich, and with Professors Sherrington, Starling and Clark in England.

Dr. Augustus Robinson, of Annapolis Royal, was the recipient of many congratulations on the recent celebration of his 89th birthday. Dr. Robinson is carrying on his practice with wonderful vigor, to the great satisfaction of a host of admiring friends.

The annual reunion of No. 7 Canadian Stationary Hospital, C.E.F. (Dalhousie Unit) was held at Halifax on November 28th. The function, in the form of a dinner, was presided over by Col. John Stewart, the original O. C. of the unit. Among those in attendance were many of the medical officers of the unit, as well as nurses and other ranks. An exceedingly pleasant evening was thoroughly enjoyed by all who participated.

QUEBEC

St. Paul des Metis will shortly have a modern hospital. Ten acres of land have been given by the Grey Nuns of Montreal who have agreed to begin construction immediately on the first wing of a modern building.

Among the recent notices of application to the Legislature for special acts at the coming session, is one from the Protestant hospital for the insane, changing its name into that of the Verdun Protestant Hospital.

A banquet was tendered in December by the Medical Faculty of McGill University at the Mount Royal Club to Dr. F. G. Finley, C.B. and Dr. J. Alexander Hutchison, C.B.E. on the retirement from their respective teaching positions on the staff of McGill University and of the Montreal General Hospital. Dr. Finley has been connected with McGill for over thirty-eight years and was senior attending physician at the Mon-

treil General Hospital. Dr. Hutchison was for long years Professor of Surgery and was senior surgeon at the Montreal General Hospital, his connection with the institution extending over thirty years. In a short address Sir Arthur Currie principal of McGill University, expressed the value of the services they had rendered to McGill and expressed regret at their retirement.

Formal opening of the Roddick Memorial Gates and Clock Tower, presented by Lady Roddick to McGill University in honour of her husband, the late Sir Thomas Roddick, will take place in the spring, according to an announcement made recently at McGill University.

"We beg to extend our congratulations to the Montreal Health and Tuberculosis League upon their good fortune in having obtained the services of Dr. Grant Fleming, M.C., D.P.H., as their executive secre-

tary. The Secretary of the Canadian Tuberculosis Association has been in intimate contact, professionally, with Dr. Grant Fleming practically since his graduation, having received him as a young man at the Isolation Hospital of the city of Toronto where he reported as newly appointed bacteriologist for the City Laboratories, to lecture to the undergraduate nurses of the training school. His inherent modesty and jovial personality and his outstanding professional equipment from a scientific point of view, as well as that of applied preventive medicine, have been a wonderful source of assistance to him during his rather unique Canadian career. He has practically served in, and had administration over every branch of the modern practice of public health, and this experience has been obtained in the only population group in Canada nearing in size that of the city of Montreal in which he now finds himself anew in specialized activities. He comes to this field of possibilities having been assistant in the administration of the health activities in a neighbouring city. The action of the Montreal Health League brings to Montreal a young, virile modern health expert with all the scientific knowledge available. This means a very great asset to the cause of the anti-tuberculosis work in Canada and will prove a wonderful source of strength to the splendid effort financed by Lord Atholstan for the metropolis of Canada." (Bulletin, Canadian Tuberculosis Association).

The authorities of Montreal University, have leased from the Catholic National Syndicate, two stories of their building at Demontigny and Beaudry

Streets, where, within six weeks, the university will open its courses in training for public service nurses, which has been in preparation as a plan for some time. In this school it is intended giving a thorough theoretical and practical course in preventive, clinical and social hygiene, after which a nurse would be ready to take up public nursing in all its stages. Tuberculosis, contagious maladies, infant care, and general health are to be emphasized, and the new departure is stated to be the first step in an immense campaign against disease which prevails where neglect, ignorance and inability to obtain professional care obtain. The city has approved \$5,000 annually towards the school, and the Province, through its Public Health Department, has contributed. Co-operation between the city and university have been assured, it being understood that all city staff nurses are to be trained by the school free of charge. They will be taken in groups of four and when the first have received their diplomas, four more will be taken. The course is a post-graduate one. The maintenance of the school is expected to cost \$20,000 a year, part of which is provided for subsidies, the balance of which it is expected to obtain by fees and contributions. The work is to have a practical application immediately, and the city has placed two districts, known as St. Catharines and St. James—two of the most populous parishes in the city—at the disposition of the medical authorities conducting the school. Infantile mortality, tuberculosis, children's diseases, maternity, and hygienic conditions will form the base of the work, and statistics are to be compiled regularly to show the effect of the experiment on the health of these districts.

ONTARIO

On November 12th, Dr. H. B. Anderson addressed the Oxford County Medical Society at Woodstock, his subject being "Goitre."

Dr. Roscoe Graham addressed the Hastings County Medical Society on November 12th, at Trenton, taking as his subject, "The importance of the history and clinical examination in acute abdominal conditions."

At a meeting of the Sudbury Medical Society on November 12th, Dr. H. B. VanWyck gave an address on "Obstetrical injuries and their after-results, with special reference to prevention."

The Muskoka Medical Society met at the Hospital for Consumptives on November 12th, when the following addresses were heard:—"The differential diagnosis of pain in the back," by Dr. Geo. S. Strathy, and "Empyema," by Dr. N. S. Shenstone.

At a meeting of the Peterborough Medical Society on November 13th, Dr. C. S. Wright gave an address on "Some explanations of low back pain with consideration of sacro-lumbar and sacro-iliac lesions."

On November 13th, Dr. H. K. Detweiler, of Toronto, addressed the Perth County Medical Society at Stratford, his subject being "Principles of vaccine and serum therapy."

On November 14th, Dr. L. J. Austin, of Kingston addressed a meeting of the Prince Edward County Medical Society, his subject being "Surgical difficulties."

The Kent County Medical Society met at Chatham on November 13th, when the following addresses were given:—"The interpretation of the signs and symptoms of chronic-gastro-intestinal disease," by Dr. F.

W. Rolph; and "The pathology of the gallbladder and bile ducts and its relation to the clinical manifestations of disease, and the surgical treatment indicated," by Dr. E. S. Ryerson.

Dr. Norman B. Gwyn, of Toronto addressed the Haldimand County Medical Society at Cayuga on November 14th, on "Early diagnosis and treatment of pneumonia and empyema."

At a meeting of the South Waterloo Medical Society held at Galt on November 14th, the following addresses were given:—"The acute abdomen," by Dr. Hadley Williams, of London; and "X-ray in relation to acute abdominal conditions," by Dr. Geo. McNeill, London.

On November 18th, Dr. H. W. Hill, of London, addressed the Welland County Medical Society at Welland, on "Anaphylaxis."

The Wellington County Medical Society met at Guelph on November 19th, when the following addresses were given:—"Modern Views on the Conduct of Labour," by Dr. K. C. McIlwraith, of Toronto; and "The place of antitoxins, serums and vaccines in the control of communicable diseases," Dr. R. D. Defries.

Dr. A. B. LeMesurier, of Toronto addressed the Perth County Medical Society at Stratford, on November 20th, his subject being "Fracture of the femur."

On November 20th, Dr. F. W. Marlow addressed the Lambton County Medical Society on "Inflammatory diseases of the pelvic organs."

At a meeting of the Lincoln County Medical Society on November 25th, Dr. F. W. Luney, of Lon-

don gave a talk on "A simple citrate method of blood transfusion."

At a meeting of the Peterborough Medical Society on November 27th, Dr. A. Hunter, of the University of Toronto, gave an address on "Recent advances in the science of nutrition."

The Perth County Medical Society met at Stratford on November 27th. Dr. W. L. Robinson, of Toronto gave an illustrated talk on "Classification, pathology, diagnosis and treatment of diseases of the breast."

At a meeting of the North Waterloo Medical Society held at Kitchener on November 28th, Dr. J. M. McCulloch, of Peterborough, gave an address on "Discussion of the common disorders of the heart."

On December 3rd, the Middlesex County Medical Society met in London. The following addresses were given:—"Eviction of old man catarrah," Dr. J. G. Hunt, of London; "Practical demonstration of difficult presentations in obstetrics," Dr. J. R. McCabe, of Strathroy.

Dr. C. S. Wright, of Toronto, addressed the Sault Ste. Marie Medical Society on December 5th, his subject being "Personal experiences in the investigations of chronic arthritis."

On December 10th, Dr. M. H. V. Cameron, of Toronto, addressed the Oxford County Medical Society on "Intestinal obstruction."

At a meeting of the Muskoka Medical Society held at the Sanatorium on December 10th, the follow-

ing addresses were given:—"The pathology of the ductless glands," by Dr. N. B. Taylor, of Toronto; and "Cardiac Irregularities," by Dr. John Oille, of Toronto.

The Dufferin County Medical Society met at Orangeville on December 10th. Dr. J. K. McGregor, of Hamilton, gave an address on "The differential diagnosis and treatment of goitre."

Dr. Fulton Risdon, of Toronto, addressed the Peterborough Medical Society on December 11th, his subject being, "New growths about the mouth."

At a meeting of the South Waterloo Medical Society held at Galt on December 11th, Dr. Oskar Klotz, of the Department of Pathology, University of Toronto, gave an address on "What help may the laboratory be expected to contribute."

A new medical society known as the Porcupine District Medical Society was organized in Northern Ontario on November 12th, with Dr. H. H. Moore, of Timmins, as President, and Dr. S. R. Harrison, of Timmins, as Secretary. The first regular meeting of this newly formed society was held in Timmins on Saturday evening, December 13th. Dr. Norman B. Gwyn, of Toronto, gave an address on "The diagnosis and treatment of pneumonia and empyema," and Dr. T. C. Routley, Secretary of the Ontario Medical Association, spoke on "Organization."

A meeting of the Harvey Club of London, Ontario, was held on January the 8th, the address of the evening was given by Dr. Lindsay, the subject being "History of Pediatrics."

ALBERTA

Dr. L. L. Cairns, of Bow Island, has moved to Trochu.

Dr. G. A. Charter, of Oyen, has left for Williams Lake, B.C., where he intends practising.

Dr. Swinburne, of Calgary, has gone to Wayne to relieve Dr. J. P. Sweeney, who has been ill.

Dr. W. Hackney, of Calgary, left recently for New York to pursue special studies at the Manhattan Eye, Ear and Throat Hospital.

Dr. T. J. Costello, who left Calgary some months ago for London, England, is now stationed at St. Kitts, Leeward Islands, B. W. I., having taken a position in the British Colonial Service.

Dr. Gordon L. McGuffin, who has spent the past four years in post-graduate work in Chicago, has come to reside in Calgary, and will specialize in diseases of the eye, ear, nose and throat.

Dr. C. W. Henderson, of Carstairs, who has disposed of his practice to Dr. G. N. Maynes, of Spirit

River, has left for Toronto, where he will practice in future.

Dr. D. R. Wark, of Vulcan, has left for London, England, to take up special work in pediatrics, during the next twelve months. Dr. Wesley M. Almond, of Altario, has secured his practice.

On December 18th the Sister Superior and Sisters of the Holy Cross Hospital, Calgary, tendered a dinner to the attending staff of the hospital, at which over seventy physicians were present. Following the dinner a meeting was held and papers were read by Dr. Dunlop, on "The Relationship of the Nursing Staff to Hospital Standardization," and by Dr. F. H. Mayhood on "Case Records." The Rev. Father Cameron read the "Surgical Code for Catholic Hospitals."

The Workmen's Compensation Board recently appointed Dr. H. K. Groff to its staff. He will travel throughout the province visiting Workmen's Compensation Board patients in the hospitals, and will consult with the physicians in charge of these cases. If this new arrangement will bring about a better understanding between the Board and the medical profession, it will have served a good purpose.

MANITOBA

The medical research committee of the University of Manitoba has received a gift of \$2,000 to be devoted to research and clinical work from the following men:

W. H. McWilliams, James A. Richardson, Sidney Smith, W. A. Murphy, J. C. Gage, Harold D. Gooderham, E. E. Hall and C. G. Spencer.

Research will be devoted to the solution of certain problems of blood chemistry and clinically the fund will be used to investigate certain blood diseases, notably pernicious anaemia and leukaemias. Laboratory work will be done at the Medical College, while the clinics will be conducted at the General Hospital.

It is the intention of the research committee to link this fund up with the Gordon Bell Memorial Fund, which was established at a meeting last October of the College of Physicians and Surgeons of Manitoba, when \$20,000 was set aside to be used with interest, in research along the line of the activities of Dr. Bell.

BRITISH COLUMBIA

At the annual meeting of the Victoria Medical Society the following officers were elected: President, Dr. Walter Bapty, Vice-President, Dr. J. W. Lennox, Hon. Secy.-Treas., Dr. John H. Moore. The Victoria Medical Society has a very active membership, and holds two meetings, monthly, one of which is wholly clinical. The average attendance is very high and considerable importance is attached to the matters of programme and agenda for all meetings. The luncheons of the Victoria Medical Society, held monthly, have been very popular and well attended, and have been most helpful to the profession in providing not only an opportunity for the members to meet in a very social way, but also to find interest and instruction in the short addresses and discussions arranged.

The retiring officers, Dr. M. J. Keys, who was president last year, and Dr. Gordon Kenning as honorary secretary-treasurer, deserved the vote of thanks for their energetic work on behalf of the Victoria Medical Society.

Dr. W. D. Keith, of Vancouver, has recently returned to the city after a trip east, during which he attended clinics at various eastern centres, including Rochester and Toronto.

At the clinical meeting of the Vancouver Medical Association held on the 16th December, Dr. Colin Graham presented a case of meningitis of otitic origin in a boy of fifteen, followed some weeks later by an abscess of the temporo-sphenoidal lobe, with recovery after operation. Dr. J. A. Sutherland presented a case of obstructive jaundice in which x-ray examination

showed a characteristic duodenal filling defect diagnosed as malignant. Dr. J. W. Thomson showed an interesting case of intestinal obstruction following operation for appendicular abscess. This patient had two distinct obstructions, with several days intervening.

Dr. A. Primrose Wells, of Duncan, B.C., has returned home after a pleasant three months vacation in the east.

Dr. E. D. Carder, Assistant Medical Officer of Health of Vancouver, returned in time for Christmas from a visit to Chicago, Toronto and other points. While away Dr. Carder attended the Public Health Conference at Ottawa.

The Summer School Committee of the Vancouver Medical Association is busy arranging the programme for the meeting this summer. It is proposed to bring to Vancouver the very best speakers in the several subjects and the Committee is looking forward to a big gathering.

This month's issue of the Vancouver Medical Association *Bulletin* contains a report of the Sub-Committee of the British Columbia Medical Association on "Health Insurance," as well as an abstract of Dr. R. C. Coffey's paper on "The Quarantine Pack in Abdominal Surgery" and a short abstract of Dr. George A. Lamont's paper on "The Early Weaned Infant," which he gave before the Association on December 2nd.

Antirachitic Action of Light.—A. F. Hess (*Amer. Jour. Dis. of Children*, Oct. 1924, p. 517) ascertain whether the treatment of inert substances with the rays of the mercury-vapour lamp could endow them with antirachitic properties. He found that cotton-seed oil, when exposed for an hour to these rays at a distance of one foot, had acquired antirachitic potency. The irradiated oil was given as food to young rats in the amounts of 0.1 and 0.25 c.cm. daily, the control animals receiving non-irradiated oil; all the animals were fed on a standard rickets-producing dietary. Linseed oil, tried as an alternative to cotton-seed oil, was found equally suitable, but mineral oil after irradiation developed no antirachitic properties. Such

properties were also absent from fluids, including linseed oil, containing radium, hydrogen peroxide, and ozonated water, none of which had any protective potency for rickets. The irradiated oils with antirachitic properties were found to be unaltered as regards their content of unsaturated fatty acid, although the total acidity had somewhat increased. The colour was slightly bleached and a rather fishy odor was acquired, resembling that of cod-liver oil. The author is at present studying the question whether the antirachitic potency of such substances as cod-liver oil can be improved by treatment with ultra-violet rays.—*Jour. Brit. Med. Ass.*, Dec. 20, 1924.

Book Reviews

Fighting Foes Too Small to See. By Joseph McFarland, M.D., Sc.D., Professor of Pathology in the Medical Department of the University of Pennsylvania. Cloth, 309 pages, with 64 engravings. Price \$2.50 net. F. A. Davis Company, Philadelphia, 1924.

This book as its name would imply, is not in any sense of a technical character but developed out of a series of popular lectures on the subject of microbiology delivered in Philadelphia in January and February, 1921.

The book is not intended to be a text book but is an accurate and commendable arrangement of facts on the subject of bacteriology presented in an exceedingly interesting and captivating form. The text is extremely well furnished with appropriate illustrations. Following a rather lengthy but story-like outline of the history of the subject, the author deals in a very general, non-technical way with the subjects of fermentation, infection, transmission of the cause of disease, and immunity. Pasteur's epoch-making discoveries in chicken cholera, anthrax and rabies are vividly described.

The last half of the book is confined to "The prevention of diseases whose germs are transmitted by insects," and deals largely with malaria, African sleeping sickness, and the plague. Considering each from the historical aspect and interjecting quotations from other well known authors, the writer has succeeded in making this portion of the book very attractive. For example: In discussing the plague, whole pages are drawn from *Curiosities of Medicine* by Gould and Pye, and excerpts from the diary of Samuel Pepys between April 30, 1665 and January 30, 1666 in which he gives a good sketch of the plague as it progressed in England at that time.

While meant to meet the demands of the lay reader, the book contains a wealth of information which is usually not present in text-books and therefore will make a valuable addition to the library of professional men. F. W. L.

Manual for Diabetics. By Gladys L. Boyd, M.D. and Marion D. Stalmsmith, with an introduction by F. G. Banting, M.D. 90 pages. McClelland & Stewart, Ltd., Toronto, 1924.

As Dr. Banting states in the introduction to this small volume, diabetes more than any other disease requires intimate co-operation between the physician and the patient; it is essential that patients suffering from this disease should thoroughly understand its cause and its course in order that they may intelligently carry out their physician's instructions. We have met with no book in which the fundamental facts of the disease and the directions for its treatment are more clearly stated than in this manual which has been placed in our hands for review. It opens with a short chapter describing what insulin is, the technique of its administration, and the dangers that may arise from any careless use of this new active therapeutic agent. Insistence is placed on the fact that the use of insulin in no way decreases the necessity, at the outset, of the treatment for care in the dietary, and on the importance of maintaining a proper balance between the food intake and the dose of insulin. Full instructions are given regarding the many types of diet, which have all the common aim of sparing the pancreatic function. Directions for the weight and measurement of food, full descriptions of any complications that may arise, directions for the examination of the urine, and a table of food values form the

first half of the work. Then follows a number of diabetic recipes, and a final chapter upon planning the diet for the day, necessitated by the various classes of patients. It is a book that every one in charge of a diabetic should have. It is written in plain English, is clearly printed, and is of convenient size for the pocket. It is a book that can be recommended as in every way satisfactory. A. D. B.

Recent Advances in Medicine. Clinical, Laboratory, Therapeutic. By G. E. Beaumont, M.A., D.M., F.R.C.P., D.P.H.; Assistant Physician to the Middlesex Hospital, and to the Brompton Hospital, and E. G. Dodds, M.B., B.S., B.Sc. Chemical Pathologist to the Middlesex Hospital, Bland-Sutton Institute of Pathology. Svo, 292 pages, 37 Illustrations. Price \$3.25. The Macmillan Company, Toronto, 1924.

This is a very attractive little volume which will serve to put the physician and surgeon in touch with the newer methods and procedures in use in clinical and laboratory investigation and treatment of disease.

The chapters include among others, Blood Analysis, Tests of Renal Function, Glycosuria and Diabetes, Pancreatic Function, Hepatic Function, Gastric Function, Basal Metabolism, Endocrine Disorders, The Heart, Pneumothorax, Cutaneous Protein Tests and The Cerebro-spinal Fluid.

The work is of special value in that the techniques described have been previously tried out by one or other of the authors, and adopted as their routine. There is also an attempt to compare the results when different procedures are described.

This handbook will be of value to the laboratory worker as well as to the practitioner. J. H. E.

International Clinics. Thirty-fourth series, volume iii, 1924. Edited by Henry W. Cattell, A.M., M.D. Philadelphia, U.S.A. with Medical and Surgical Collaborators in United States, England and Canada. Price \$2.50 per volume or \$10.00 for the series of four. J. B. Lippincott Company, Montreal.

The departments represented in the present number are Public Health and Hygiene six papers, Diagnosis and Treatment seven papers, Medicine four papers, Pediatrics one and Surgery two. Walsh has written a timely paper on the subject of health examinations. The article on the Dick test with the coloured plates makes a splendid presentation of this recent advance in medicine. Hipwell and Gilchrist write on the outlook in insulin treatment. Watson's publication of Constans Curtin's notes of Rush's lectures gives us a new insight into Rush, his actual ideas and epigrammatic sentences. Some of the case reports are of unusual interest. Smithies has an excellent article on the management of peptic ulcer. J. H. S.

Stedman's Medical Dictionary. A practical medical dictionary of words used in medicine with their derivation and pronunciation. By Thomas Lathrop Stedman, A.M., M.D. 8th revised edition, 8 vo, 1146 pages, numerous illustrations, 15 full page plates. Price \$7.00, Thumb Indexed \$7.50 William Wood Company, New York, 1924.

In this new edition in order to make room for numerous new words and terms without increasing the size of the book, the entries regarding mineral springs have been dropped. There has been much

added in the realm of dental terms while the veterinary, chemical, botanical, electrical, life insurance and other special terms have been revised to date. The strength of pharmaceutical preparations is in accord with the latest edition of the British Pharmacopoeia, the National Formulary and the U.S. Pharmacopoeia. This dictionary has made its place as a ready reference book while its careful revisions keep it well abreast of medical progress. J. H. E.

Blood Pressure. Cause, Effect and Remedy. By Lewellys F. Barker, M.D., LL.D. Professor Emeritus on Medicine in Johns Hopkins University, and Norman B. Cole, M.D., Assistant in Clinical Medicine in Johns Hopkins University. 153 pages. Price \$1.50. D. Appleton and Company, New York and London, 1924.

This little volume is one of a series on health subjects issued by Appleton. In plain readable English, free from technical language, the subject of Blood Pressure, normal and abnormal, is discussed. It is pointed out that symptoms may develop late in the course of hypertension, and that the condition is usually secondary to other diseased conditions. The manual is a safe and sane one for the physician to recommend to any patient who appears to be working under tension or strain, or who has renal disease or some other condition apt to induce hypertension. The work should also be of assistance to the busy physician who wants co-operation based on knowledge. J. H. E.

Text-Book of Pathology. By Robert Muir. 774 pages, illustrated. Price 35s. net. Edward Arnold & Co., 41 Maddox St., London, W.1. 1924.

This is a work of 774 pages, exclusive of the index, and forms one of a group of medium-sized text-books on pathology which have in the last two or three years emanated from the other side of the Atlantic; some new, others revised and modernized editions of older and well-known treatises.

As to the scope and character of this particular book, we may quote the author, from his preface. He "has endeavoured, in the first place, to give due weight to the scientific aspect of the general pathological processes, and, in the second, to describe these pathological changes in the various organs, which are of special importance in relation to clinical medicine and surgery. The subject-matter thus falls into two main portions, corresponding roughly with General and Special Pathology." It will, consequently, be seen that Dr. Muir's work follows the well-known conventional lines. He has had to meet the problem, familiar to all who have written similar text-books, viz., to produce a book of convenient size and reasonable price, which shall be, at the same time, adequate for the purposes of the medical student; and this is no easy task. He has wisely omitted, we think, extended references to bacteriology and parasitology, as subjects that can be much better treated in special works. He endeavours to teach principles by descriptive references to morbid anatomy, though he admits that gross anatomical lesions are not always to be found in connection with disease processes. This idea is, doubtless, sound, inasmuch as observation should precede orientation and theorizing. But, it may well be doubted whether morbid anatomy and histology can be learned effectively from a book. The proper places for this are the autopsy room, the museum, and the laboratory. Unless, then, morbid anatomy and pathological histology are taught the student early in his course, before didactic instruction on principles has been given, and this is seldom the case, Dr. Muir's text-book will fail of its full purpose. The relative value that the author would put upon these two departments of his subject can be inferred from the fact that 226 pages are allotted to general processes, and 530 to

special (systemic) pathology. It would appear to the reviewer that the general principles at work in disease processes cannot be adequately dealt with in such a short space. We are of the opinion that writers of text-books on pathology, intended for the use of students, would be well-advised to omit any attempt at systematic treatment of morbid anatomical lesions, and to confine their efforts to presenting the philosophy of disease in an adequate and consequential way, having in mind, of course, the necessity of producing a volume that will be of reasonable size and price. Written descriptions of gross lesions would appear to be of more use to teachers than to students, and then only to enable them to get the facts in an orderly way.

Some exception, we think, may justly be taken to the plan of the book. The chapters dealing with the morbid anatomy of the nervous system are sandwiched in between those on the urinary system and those on the reproductive system, which seems illogical, and a chapter on endocrinology brings up the rear. While, then, we think that the sequence of subjects is disorderly and unscientific, we are far from suggesting that this book is any worse in this respect than many others that could be mentioned. These views are, of course, only the personal opinions of the reviewer, and may not be shared by all pathologists. Nor is it our desire to seriously detract from what is in other respects an excellently good book. The subject-matter is up-to-date, the style is lucid and easy, and the points are well put. The book, further, is copiously illustrated, and the figures are usually well chosen. Those relating to tuberculosis of the lung might, perhaps, be improved. The style of production is very good. Altogether, it may be commended as a useful presentment of a difficult and somewhat elusive subject. A. G. NICHOLLS

Diabetic Diet. By Doris A. McHenry, B.A. and Marjorie M. Cooper, B.A. With an introduction by J. A. Gilchrist, B.A., M.B., and F. G. Banting, M.C., M.B., F.R.C.S., F.R.C.P., M.D. *A Handbook for Diabetics.* 62 pages. Price \$1.50. The Musson Book Co., Ltd., 263 Adelaide St. W., Toronto. 1924.

This little hand-book is intended for the lay patient suffering from diabetes to aid him in carrying out the necessary dietary restrictions. It was written by the two dietitians in charge of the Christie Street Hospital under the Department of Soldiers' Civil Re-establishment. It includes chapters on the composition and value of food; the importance of diet in the treatment of diabetes; analysis of the urine; weights and measures; diabetic recipes and tables of food values. While not as complete as Joslin's "Diabetic Manual," It should prove of great service both to the diabetic patient and the dietitian. It is written in clear, simple language readily understandable to even the non-scientifically trained mind. C. P. H.

Outlines of Internal Medicine. By Clifford Bailey Farr, A.M., M.D. Fourth and revised edition. 377 pages, illustrated. Price \$2.75. Lea and Febiger, 706 Sansom Street, Philadelphia. 1924.

The writer of this small manual has attempted to condense the present day knowledge of internal medicine and present it in a form which may be studied with profit by nurses in training. The book fulfils the intentions of the author in a satisfactory manner. The various subjects are dealt with concisely. Technical terms are not too numerous and when employed are fully explained. In this the fourth edition there is evidence of careful revision and the subject matter is brought up to date. As a book for medical students it is difficult to say at what stage of the students' career it would be of any service, but as a text-book for nurses it is highly recommended. K. A. McK.

Facial Surgery. By H. P. Pickerill, C. B. E., M.D., M.S. 150 pages, illustrated. Price 21s. net. E. & S. Livingstone, 16 Teviot Place, Edinburgh. 1924.

Mr. Pickerill presents in a compact volume the subject of plastic repair of the face and jaws. From his large experience during the war as Surgeon-in-Chief of the New Zealand section of Queen's Hospital, Sidcup, he has collated an abundant material which he uses to advantage in illustrating the principles and technique of operative procedures for repair of deformities and disabilities.

The book is divided into three sections. Part I. deals with the principles, methods and technique of plastic surgery and is essentially practical. The four cardinal principles are defined as a sepsis, absence of tension, accuracy of adaptation and avoidance of raw surfaces.

Grafts of different varieties and tissues are described and indications for each discussed.

Part II. deals with military facial surgery. It is classified into areas lost or impaired and the operations of choice to remedy each defect.

And finally Part III. deals with facial surgery in civil practice. The lessons learned from war experience in plastic surgery are here applied in dealing with malignant disease of the face as well as with congenital and acquired deformities.

The volume is profusely illustrated, is of convenient size, and in workmanship is a credit to the publishers. The book is of value not only to surgeons interested in this special department but also to the general surgeon as indicating the possibilities of facial repair in the hands of those with proper training.

A. T. B.

Fundamentals of Human Physiology. By R. G. Pearce, B.A., M.D., and J. R. MacLeod, M.B., D.Sc., F.R.S., assisted by Dr. Norman B. Taylor. Third edition. 349 pages, illustrated. Price \$3.50. C. V. Mosby Co., 508 N. Grand Blvd., St. Louis, Mo., 1924.

This small volume presents in a very compact and readable form the essentials of physiology. It purports in the preface to be written for students; but it is an ideal book for the busy practitioner, who wishes a concise and up-to-date account of the known facts of the science.

The details of technical detail and of long histories of experimental work, greatly enhances the value of the volume to the average medical man whose time for such reading is limited.

In fact, this little book should fill a long felt want, by giving us a modern and authoritative synopsis of human physiology.

W. H. McF.

Anaesthesia for Nurses. By William Webster. 153 pages, illustrated. Price \$2.00. The C. V. Mosby Co., 508 North Grand Boulevard, St. Louis. 1924.

Col. Webster's small handbook of Anaesthesia for Nurses presents, in a clear and readable form, all that is necessary for a nurse anaesthetist to know.

The physiology of anaesthesia is presented in a simple and interesting way. All the principal anaesthetics, including ethylene, and their mixtures are explained. There are specially useful chapters on the difficulties and complications of anaesthesia, on preliminary medication, and on surgical shock.

Apparently, Col. Webster does not accept Levy's explanation of the cause of syncope under chloroform. His views of the value of direct injections into the heart immediately after it has stopped, during anaesthesia, are not in accord with the experience of many who have had to deal with this emergency.

We note that in writing of artificial respiration the patient is described as being "generally in the prone position, lying on the back."

D. H. B.

A Text-Book of Physiology. By H. E. Roaf, M.D. Toronto, D.Sc. Liverpool, M.R.C.S., L.R.C.P., Professor of Physiology at the London Hospital Medical College, University of London. 605 pages illustrated. Publishers, Edward Arnold & Co., London. 1924.

This book is a carefully arranged text-book designed for the use of students of physiology, whether undergraduates or graduates in medicine. The arrangement of the subject matter has much to recommend it to the reader. The book is divided into four parts, dealing with the mechanical, chemical, biological and special aspects of physiology. In the first part are grouped those aspects of function which come most readily under observation—ordinary mechanics as applied to the study of muscles, the circulation, etc. The second part discusses the chemical transformations and exchanges. The third part deals with the integrative action of the nervous system and the endocrine glands in regulating the various activities of the body. The fourth part is devoted to the consideration of reproduction and the maintenance of the individual. This grouping has the advantage of general clearness but the study of one special function such as that of the circulatory system has to be followed in the various divisions in order to link together mechanics, chemistry and regulation. This treatment of the subject matter is undoubtedly best suited to the consideration of the action of the nervous system. The extent and complexity of the subject matter in physiology imposes limitations upon the making of a general text-book. Every individual compartment cannot be over-filled with information without making the whole unwieldy. Neither can any one compartment be so treated without destroying the balance. Again, the extent of the literature going to make up a text-book forces the author to curtail or dispense with a bibliography. In this book the bibliography is limited to a few outstanding references placed at the end of chapters. This increases, perhaps, the suitability of this text-book for the general study of physiology, but necessarily diminishes its value for those desiring special reference. The illustrations in this book have been carefully selected and are frequent and helpful.

V. H. K. M.

Safeguarding Children's Nerves. A handbook of mental hygiene. By James J. Walsh, M.D., Ph.D., Sc.D. and John A. Foote, M.D. 272 pages, illustrated. J. B. Lippincott Co., Philadelphia.

This small volume of two hundred and seventy pages is written in popular style for the profession and laity as well. It deals in a very sensible and outspoken manner with all the common problems which daily confront those who realize the responsibility entailed in the correct up-bringing of children. Although the profession may not subscribe in its entirety, to those views expressed in the chapter on heredity, there is nothing specific with which exception may be taken. The general impression which the ordinary reader carries away may be misleading. Throughout the volume the importance of the child's nervous system is emphasized and prevention rather than cure is invariably stressed. The book should not only be read by all practitioners and its sound common sense imparted to those seeking advice, but recommended by them to responsible parents capable of comprehending and acting upon its instructions.

F. B.

Hygienic Fundamentals of Food Handling. By Charles Thom and Albert C. Hunter. 228 pages, illustrated. Price \$3.00. Williams Wilkins Company, Baltimore. 1924.

This volume on the Hygienic Fundamental of Food Handling is an able treatise on a subject which in its modern aspects has been too much neglected. The

book fills a gap between the scientist on one hand and the practical food handler on the other, and is written in language free from technical terms and should be assimilable by any one of ordinary education. At the same time, it contains for the medical practitioner an appreciable amount of up-to-date findings which he could otherwise only acquire after considerable research, the chapter on Botulism being especially pertinent. The chapter which treats of the necessary steps to be followed by canning factories has a large amount of valuable knowledge in regard to the causes which may lead to the spoiling of inadequately conserved foods.

In view of the large amount of poultry condemned by inspectors on account of improper handling, the elaborate chapter on the conservation of poultry should be of special interest to teachers in agricultural colleges. To consumers and all interested in the handling of foodstuffs, it constitutes a handy reference book. A.J.D.

The Principles of Orthopaedic Surgery for Nurses.

By James Warren Sever, M.D. Boston, Mass., Assistant Orthopaedic Surgeon, Children's Hospital, Boston, Instructor in Orthopaedic Surgery, Harvard Medical School. 203 pages with 136 illustrations, small octavo. Price \$5.00. The Macmillan Company, New York. 1924.

This small volume comprises the material forming the basis of lectures to nurses on orthopaedic surgery by the author, and is an excellent presentation of the subject, especially in view of the audience to whom they were addressed.

The book is particularly well illustrated, which should assist the text to a very considerable degree in inculcating a working knowledge knowledge of the principles of this specialized subject. Indeed the subject is covered in such a thorough manner that its perusal cannot fail to be of interest and benefit to the practitioner of medicine who is not constantly called upon to deal with the problems involved. Naturally the methods of treatment described are largely of the manipulative type and operative technique is but briefly referred to, but this does not detract from the merits of the production. E. R. S.

Practical Surgery Illustrated. By Victor Pauchet.

Translated by F. R. B. Atkinson. With an introduction by Sir Charles Gordon-Watson, C.M.G., F.R.C.S. Vol. 1, 293 pages; vol. 2, 252 pages, illustrated. Price 18s. 6d. each. Ernest Benn Limited, 8 Bouverie Street, London, E.C.4, 1924.

This work will comprise a series of six volumes, only two of which have been as yet issued, by a well-known French surgeon, Victor Pauchet.

As the title implies it is purely a series of illustrated descriptions of operations as practised by this distinguished Paris surgeon. There is no pretence that it should take the place of any of the well-known textbooks on operative surgery. In fact, judging from an examination of the volumes now to hand, it would be of little if any value to the student or embryo surgeon as a guide in the study of operative surgery. The chief fault of the work from their standpoint is that the operator jumps from region to region, picking out an operation here and there.

But to the Canadian surgeon who is familiar with surgery as practised in Canada, the United States and Great Britain, and who has not had the opportunity of studying continental surgery at first hand, these volumes give him a picture of French surgery as practised by a leading exponent of the French school.

In Volume I. a method for the radical cure of inguinal hernia is described, the essential point being that the peritoneum is opened above the sac and the cord separated under the guidance of a finger in the sac. In *appendicitis* the author shows himself a firm be-

liever in multiple drainage in gangrenous cases. In the treatment of *haemorrhoids*, Whitehead's operation is evidently in much favour. For operation on the *pelvic organs* the transverse incision is favoured excepting for the removal of large tumours. In the treatment of *cancer of the rectum*, Pauchet is in agreement with all modern surgeons, that an early and wide-spread removal of the growth and the lymphatic glands by an abdomino-perineal operation with the formation of an inguinal artificial anus, offers the only prospect for a cure.

Some fifty pages are devoted to the description with illustrations of what the author describes under the title of *Lane's disease*. Pauchet is evidently an enthusiastic disciple of Lane and the technique for partial or complete removal of the colon and various short-circuiting operations are exceptionally well illustrated in this work.

In the treatment of *gastric and duodenal ulcer* and of post-operative *jejunal ulcer*, the author's method of choice is a partial gastrectomy, followed by a gastro-jejunosomy.

In Volume II. *brain surgery* is illustrated by a description of a case of cerebellar decompression. The treatment of cancer of the uterus both by radium and by operation or by both is discussed. Radium is recommended after operation and not before. *Supra-pubic prosectomy* in two stages is usually recommended, while perineal prosectomy has its various steps voluminously illustrated, but the illustrations would be of little if any value to the inexperienced urological surgeon. One feature common to all the operations described, is the almost universal use of local anaesthesia or of spinal and splanchnic anaesthesia.

The illustrations as a rule are excellent and drawn from life, and the text explains them although generally they are so clear that little explanation is required.

On the whole this work is interesting and instructive to the advanced surgeon but not to the junior surgeon or student. E. V. HOGAN

Minor Surgery and Bandaging, for the use of House Surgeons, Dressers, and Junior Practitioners. Eighteenth Edition. By Gwynne Williams, M.S., F.R.C.S., Surgeon, University College Hospital, London. Small 8vo, 423 pages, with 239 illustrations. Price \$3.15. The Macmillan Company of Canada Ltd. 1924.

This small volume is the eighteenth edition of a book originally written by Christopher Heath in 1861, which is in itself sufficient evidence that it has established a place for itself.

The various problems which are generally considered under the domain of minor surgery, such as the preparation of the patient for operation, and post-operative treatment, wounds, contusions, burns and so forth are all well dealt with, and in addition more extended reference is made to the treatment of fractures than one would expect from the title. The reference to the skeletal traction method by the use of screws is not particularly well chosen since the caliper method is to be preferred, and is certainly more within the province of minor surgery.

A separate chapter by Dudley W. Buxton and Felix Rood on the administration of anaesthetics, and local, regional and spinal analgesia, adds much to the value of the volume. E. R. S.

Pneumonia, Its Pathology, Diagnosis, Prognosis and Treatment. By the late Murray Leslie, M.A., B.Sc., M.D. Edited and revised by J. Browning Alexander, M.D., M.R.C.P. 351 pages. Price 12s. 6d. net. Wm. Heinemann (Medical Books) Ltd., 20 Bedford St., London, W.C.2. 1924.

This book of 350 pages of convenient reading size, well printed and put together, is written in a refresh-

ing narrative form and its essentially clinical character bears the imprint of the English physician. It is not, and does not pretend to be, a series of protocols of an investigator into any of the uncharted fields of the disease, but is a sound and satisfactory exposition of pneumonia from the standpoint of clinical medicine.

It contains a great many facts relative to all of the aspects of pneumonia, and the authors have quoted freely not only from European but from American writers, and the names of Osler, McCrae (they will call him McCrae) and Norris, as well as the members of the Rockefeller School appear frequently in its pages.

The chapters upon treatment are very satisfying and the sections covering specific serum therapy and specific drug therapy clearly summarize these subjects and bring them well up to date.

Taken altogether it is a book well worth reading through and keeping near at hand for later reference.

A. H. G.

Clinical Studies in Epilepsy. By Donald Fraser, M.D. 238 pages. E. & S. Livingstone, Edinburgh, 1924.

In the introduction the author gives a description of a case of epilepsy in a Scottish clergyman, a man of superior intellect and methodical habits, who kept notes on his own case for a period of thirty years. Dr. Hughlings Jackson saw the patient in consultation, and his report is quoted at length.

The patient's account of his own experiences with diet and drugs is very interesting. He found that a mixed diet agreed with him best. On a vegetarian diet he lacked energy and his attacks were not diminished in number. For some years he took sixty grains of bromide per day, but gave it up, being convinced that it did him much harm. And he found that when he was fully occupied in congenial surroundings he had fewer attacks. These notes and Dr. Jackson's opinion of the case have apparently inspired the author to write his "Clinical Studies."

His account of the researches made by Claude Bernard are interesting; also his descriptions of various cases of so-called idiopathic and organic or symptomatic epilepsy. But in his voyages on the sea of speculation regarding the physiological processes concerned in epileptic seizures, we cannot follow him. We are, as it were, a ship without a rudder, sailing on a trackless sea.

The author has fastened his belief upon vaso-constriction of the capillaries, especially those of the pia mater, as the mechanism concerned, basing this conception on the analogy of a constriction of retinal vessels in his own case of migraine, a disease which he, following Hughlings Jackson, identifies with epilepsy. A toxic agent is of course indispensable, and this the author supplies by hypothesis. But he thinks of this toxin as generated in the brain substance, proof being supplied by cases of tumor cerebri or trauma causing destruction of brain tissue.

The author's tendency to return to mediaeval methods of treatment, i.e., cauterization, is puzzling in view of his chapter on the cerebro-spinal reflex and Claude Bernard's experiments. Bernard found that in animals in which the spinal cord had been cut half way through, pinching the skin would bring on convulsions. There were, thus, two factors, namely trauma and irritation, and yet in summing up one or two of his cases, the author says, "I am not sure that cauterization would not have done much good in this case," or words to that effect. His views on the psychology of epilepsy are striking. "The psychology of epilepsy is that of post-epileptic conditions." His condemnation of Pierce Clark's conception of epilepsy as a condition in which there is inherent defect in the personality and failure of adaptation to environment, is sarcastic but not alto-

gether convincing. In fact, he rather overshoots the mark.

The author has gathered a lot of interesting material for his book, and while we cannot agree that his conclusions are justified by the amount of evidence at hand, we can heartily recommend "Clinical Studies" to those readers who are especially interested in epilepsy. A.G.M.

The Nervous Patient. By Millais Culpin, M.D., F.R.C.S., with a chapter on "The Major Psychoses," by Dr. Stanford Read, and on "Eye Symptoms," by Mr. W. S. Inman. 305 pages. Price 10s. 6d. net. Published by H. K. Lewis & Co. Ltd., 28 Gower Place, London, W.C.1. 1924.

This small volume of three hundred pages written by a surgeon of long experience is very readable and will give the general practitioner an up-to-date review of the most acceptable material on the subject that has appeared since the conclusion of the Great War. The brief preface stimulates interest that is well borne out by the text.

In the first chapter there is a discussion on classification and nomenclature, which is interesting and instructive. The author is evidently much annoyed with the too frequent use of neurasthenia as a diagnosis, and very ably discusses the type of cases that are too often erroneously placed in that category. In a previous paper the author reviewed some four hundred cases of a "neurotic" nature and finally identified only five as belonging to true neurasthenia.

Psycho-analysis, which is generally very much misunderstood is well explained in this volume. Probably the average practitioner has only a hazy idea of what psycho-analysis really means and, labouring under the impression that morbid sexual experiences are the only factors to be considered in this line of treatment, are inclined to dismiss this as a form of approach and relief of symptoms. Dr. Culpin shows a broader application of that science.

In this book are found many helpful suggestions regarding many common complaints including stomach disorders, the thyroid disturbances, asthma, many of the gynaecological disturbances and a number of eye symptoms. A good deal of space is devoted to hysteria.

The space given to treatment, like most books of this class is rather brief, but helpful. The book makes good reading and is recommended to the profession.

W. A. DOBSON

Internal Secretion and the Ductless Glands. By Swale Vincent, LL.D., D.Sc., M.D., M.R.C.S., L.R.C.P., F.R.S. Third edition. 463 pages, illustrated. Price 25s net. Edward Arnold & Co., London W.1. 1924.

The third edition of the well-known Swale Vincent's book gives a short but clear account of one of the most complicated problems of physiology. The first four chapters deal with the general problems of the internal secretion, under which the author understands "the preparation and setting free of certain substances of physiological utility by certain cells of a glandular type; the substances set free are not passed out to a free surface but in to the blood stream." According to this definition the products of ordinary metabolism are excluded from the "internal secretion." In subsequent chapters are discussed the internal secretion of stomach and pancreas (Chap. V and VI), of reproductive organs (Chap. VII), of adrenals bodies (Chap. VIII), of thyroid and parathyroid bodies (Chap. IX and X), of thymus (Chap. XI), of pituitary body (Chap. XII), and of pineal body (Chap. XIII). In Chap. XIV are described the interrelations of the organ of internal secretion. Here the author tries to criticize some current allusions of a relationship between the ductless

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glands on the ground of well established facts and to "separate out, a portion at any rate, of grain from the heap of chaff." Speaking about insulin the author not only discusses the physiological meaning of this hormone but describes also the methods of its preparation, the generally used tests for sugar in urine and blood, and gives indications for the selection of diabetic cases for treatment with insulin. These data as well as other clinical indications concerning different ductless glands may be of use for the practitioners. One may see that almost in all chapters the newest literature is reviewed. The book is illustrated with many diagrams and photographs.

The work of Professor Swale Vincent may be recommended to the students and practitioners and looked on as a basis for more detailed study of physiology and pathology of the internal secretion.

B. BABKIN

The Relative Position of Rest of the Eyes, and the Prolonged Occlusion Test. By F. H. Marlow, M.D., M.R.C.S. (Eng.), F.A.C.S. 100 pages. F. A. Davis Co., Philadelphia, 1924

This booklet of 100 pages is a well presented argument for the trial of prolonged occlusion of one eye, in the effort to more accurately measure errors in balance of the extra-ocular muscles. Out of a long experience of this method, the author has developed an enthusiasm which is infectious.

The brochure is well worth perusal. Some of the disappointments which all have suffered, in the attempts to make the victims of muscle imbalance comfortable, may find explanation in the ideas advanced here.

The whole question of extra-ocular muscle imbalance, as a factor in the causation of head-distress, has, perhaps, not received the attention it deserves from the average busy ophthalmologist. We believe this is partly due to the extravagances of claims in etiology and treatment made by certain enthusiasts in the past. In this little book the question is presented in a reasonable and modest way; the conclusions are eminently sane; and altogether one can recommend its reading as enjoyable and profitable.

The book-making is of the first order. F. C. T.

Medical Gynaecology.—By Samuel Wyllis Bandler, M.D. Fourth edition, thoroughly revised, with original illustrations. Price \$3.00. Philadelphia and London: The W. B. Saunders Company. Canadian Agents: The J. F. Hartz Co. Limited, Toronto. 1924.

In this book Dr. Bandler has presented in a clear and forcible manner the importance of a careful study of symptomatology and the necessity of painstaking investigations of local and general conditions in one's effort to arrive at logical and correct conclusions in the matter of diagnosis of gynaecological disorders and their interrelation with other factors pertaining to the state of health.

So great a part of the successful management and treatment of special diseases of women is non-surgical that the book should prove to be valuable, especially to general practitioners. Those engaged in the specialty will find that the practice suggested follows well established and sound principles.

F. W. M.

Physical Diagnosis. By W. D. Rose, M.D. Fourth edition. 755 pages, 319 illustrations. Price \$8.50. The C. V. Mosby Co., St. Louis, Mo., 1924.

This is a very readable book and is quite up to the standard. The chapter on x-ray diagnosis is particularly good.

In the section dealing with myocarditis and aortitis the author has endeavoured to indicate the diagnostic value and the limitations of the signs which

are presented in clinical practice. Polygraphy has been treated with great detail.

The illustrations are clear and the printing and binding are good. F. W. G.

Rheumatic Heart Disease. Carey F. Coombs, M.D., F.R.C.P., with an introduction by F. J. Poynton, M.D., F.R.C.P. 376 pages, illustrated. Price 12s. 6d. John Wright & Sons Ltd., Bristol. 1924.

This very exhaustive work upon a subject of such vast importance is much in advance of its time and takes the channels which we have not heretofore associated with this damaging disease. It is a book that should be in the hands of all physicians who are concerned with the care of children in either a public or private capacity. There is in it also, much of value to the general practitioner and whether time and further observations will bring us any substantiation of the author's ideas we certainly much accept this volume as a distinct advance on the subject under discussion. F. J. FOLINSBEE

Human Constitution. A consideration of its Relationship to disease. By George Draper, M.D., Associate in Medicine at Columbia University, New York City. Octavo of 345 pages with 208 illustrations and 105 tables. Cloth \$8.25. W. B. Saunders Co., Philadelphia and London, 1924.

In the belief that the physical form of an individual bears an important relationship to the diseases to which that individual is most liable, Dr. Draper for the past five or six years at the "Constitutional Clinic" of the Presbyterian Hospital, New York, has been conducting an elaborately detailed systematic study of the constitution of patients suffering from certain diseases.

The book under review deals with his findings and is apparently but the first of a series he proposes to publish.

The practical importance of his subject is clearly far reaching and of intimate interest to each one of us, for, if by taking a number of anatomical measurements and considering them with certain other data (e.g., blood grouping, infectious disease, history, kidney function tests and other physiological and immunological tests) each of us could foresee to what infirmities he is by nature inclined, then he could by taking timely steps adjust his mode of living towards the avoidance of such. This is equivalent to a "preventive medicine for the individual."

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Amongst the males, the tuberculous were found to have the greatest stature; those with hypertension, the shortest. Ninety per cent. of the gall bladder cases were very fat, fifty per cent of the pernicious anaemia cases were fat, and those with ulcer and tuberculosis poorly nourished. Such, no doubt, are impressions which clinicians have already formed. Dr. Draper, by employing statistical methods, would replace impressions with facts and would carry us very much farther towards certainty. His charts display very strikingly the marked differences in proportions of those suffering from the six selected diseases. To take a few examples: the subcostal angle was always very great in gall bladder cases, whereas in cases of ulcer and tuberculosis it was small. The twenty-eight tuberculous females and the sixteen hypertension males had very narrow finger nails; the gall bladder cases of both sexes broad finger nails. The gall bladder and pernicious anaemia cases of both sexes have the widest pelvis. The bi-iliac-biacromial index (ratio of

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The type of palate, length of neck, angle of jaw, length and breadth of nose, head, face and hand are amongst the proportions plotted out.

A chapter on anthropometry deals with the methods of measuring the human body as approved by anthropologists at their international meetings. This chapter and one on the construction and interpretation of curves and charts convert the book into a manual for those who would pursue the subject clinically. Those who are not interested to this extent would glean something from a glance at a few of the more suggestive charts. I say suggestive, because, as the author is well aware, he has taken but one step on a long and laborious journey, and when infinitely more figures are at his disposal the charts may require reconstructing and may not fulfil their early promises.

J. C. B. G.

Pharmacopoeia of the Teaching Hospitals of McGill University. Montreal General Hospital, Royal Victoria Hospital; Montreal Maternity Hospital; Alexandra Hospital; Children's Memorial Hospital; Montreal Foundling and Baby Hospital. Compiled by a Committee appointed by the Teaching Hospitals, Montreal, 1925.

We have received a copy of this Pharmacopoeia of the teaching hospitals of McGill University compiled by a committee appointed by the attending staff. A previous compilation of formulae in use in the Montreal General and Royal Victoria Hospitals has been used as a basis, but while this portion has been revised and modernized by the committee, many new sections have been added which will prove of great practical value to physicians generally. The first section deals with methods and formulae for use in the Department of Medicine, and in addition to prescriptions used by the attending staff, contains much information regarding special dietaries to be employed in various diseased conditions, and will be valuable for reference in the physician's every day

work. Among these we may mention the diet to be employed in typhoid fever, in gastric or duodenal ulcer, in persistent constipation, and in obesity; also directions for diet containing relative amounts of protein and of purin bodies; diets with high iron contents, with high calcium content and tables for calculating caloric values for use in cases of diabetes. There are also in this department directions for use of the various sera and vaccines and a practical chapter on protein sensitization. The section for use in the Department of Paediatrics not only contains useful prescriptions suitable to children of the age of five years, but excellent directions for infant feeding for the new born and for infants of various ages. The next contains formulae for use in the Department of Dermatology. Methods and formulae for use in the Departments of Surgery, Gynaecology and Obstetrics occupy the following two chapters, which are replete with directions for the preparation of patients, sterilization of instruments, and formulae for solutions in use in the operating room and for a few special preparations. In the obstetrical section brief directions with reference to ante-natal care, care during pregnancy and during parturition are given. All these directions are in sufficient detail. Then follow brief sections on various preparations for use in the Department of Ophthalmology, Oto-laryngology and in Dentistry. Chapter IX. will prove very useful as it gives all the more recent methods for use in the Department of Clinical Pathology, including among others normal values in the chemistry of the blood, rules for the analysis of the urine, including the estimation of glucose and acetone, bile and indican; methods for staining bacteria, and directions for examination of the blood, cerebro-spinal fluid, etc. In the last section directions are given for the treatment of poisoning by various agents and the doses of all drugs in common use. This small volume, 127 pages of small duodecimal size in soft covers, can easily be carried in the coat pocket and will be found of great value, not only by the profession generally but by nurses and all connected with hospitals. The Committee must be congratulated on a work of such completeness of detail, in so convenient a size and binding.

Books Received

The Advance of Orthopaedic Surgery—By A. H. Tubby, C.B., C.M.G. Cr. 8vo., 144 pages, 31 illustrations. Price 7s. 6d. H. K. Lewis & Co., Ltd., 28 Gower Place, London. 1924.

The Practical Medicine Series, Vol. III.—The Eye, Ear, Nose and Throat—Edited by Casey A. Wood, C.M., M.D., D.C.L. and others. 491 pages illustrated. Price \$3.00. The Year Book Publishers, 304 S. Dearborn St., Chicago. Series 1924.

The Clinical Examination of Surgical Cases, for the Use of Students—By J. Renfrew White, M.S., F.R.C.S. (Eng.) 134 pages. Price \$3.00. The Macmillan Co. of Canada, Ltd., Toronto. 1924.

A Text-Book of Surgical Handicraft for the Use of Medical Students—By J. Renfrew White, M.S., F.R.C.S. (Eng.) 566 pages. Price \$6.00. The Macmillan Co. of Canada, Ltd., Toronto. 1924.

Reports of the St. Andrews Institute for Clinical Research—St. Andrews, Fife. Vol. II. 190 pages illustrated. Humphrey Milford. Oxford University Press, 1924.

The Practical Medicine Series, Vol. I.—General Medicine—Edited by George H. Weaver, M.D. and others. 736 pages illustrated. Price \$3.00. The Year Book Publishers, 304 S. Dearborn St., Chicago. Series 1924.

The Chemical Aspects of Immunity—By H. Gideon Wells, Ph.D., M.D. 254 pages. Price \$5.00. The Chemical Catalog Co., Inc., 19 E. 24th St., New York, 1925.

The Practical Medicine Series, Vol. II.—General Surgery. Edited by Albert J. Ochsner, M.D. 706 pages illustrated. Price \$3.00. Year Book Publishers, 304 S. Dearborn St., Chicago. Series 1924.

Practical Morbid Histology—Robert Donaldson, M.A., M.D. with Foreword by Sir Humphrey Rolleston, K.C.B., M.D. 364 pages. Price \$5.50. The Macmillan Co. of Canada Ltd., Toronto. 1924.

Gynaecology, Medical and Surgical—P. Brooke Bland, M.D. Student's edition. 1257 pages, 644 illustrations. Price \$11.00. F. A. Davis Co., 1914 Cherry St., Philadelphia. 1924.

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Notes on a Series of One Hundred and Twenty-One Consecutive Prostatectomies—The most suitable anaesthetics for prostatectomy are placed by A. H. Crosbie, Boston, in order of preference as follows: (1) spinal; (2) sacral; (3) local; (4) gas-oxygen, and (5) ether. One hundred and eleven operations out of 125 were done by Crosbie under spinal anaesthesia. He has used it for patients with very low blood pressure, and in very advanced cases of myocarditis. Headaches have been eradicated by the very slow injection of the fluid into the spinal canal. Packing was done in eleven cases. Crosbie feels sure that in most of these it was unnecessary, and he has not left packing in the bladder for more than two years. The patients in whom packing is done are apt to have a stormy convalescence; moreover, the packing adds to the danger of infection. When the packing is removed, it is apt to be followed by an annoying secondary haemorrhage caused by the opening up of the vessels that were adherent to the gauze. Crosbie has also given up the use of a catheter following a suprapubic prostatectomy. The suprapubic tube gives adequate drainage, and it is as well to avoid as much as possible the urethritis that necessarily follows the use of the catheter. An occasional sound passed during convalescence will make sure that there is a patent urethra. The catheter may well be used for a few days after the suprapubic tube has been removed, to hasten the healing of the wound, but at the time of operation the patient is better off without it. The type of operation used for prostatectomy should be governed by the operation with which the operator is most familiar. Crosbie prefers the perineal operation. He condemns routine cystoscopy because the traumatism of a preliminary cystoscopy may stir up an infection that will be just enough to turn the tide in the wrong direction. In Crosbie's series of 121 prostatectomies, there were twenty, or 16.6 per cent, that were malignant. There were four deaths, or 3.3 per cent. These four deaths following operation were all in cases in which there were benign prostates. Three deaths followed the suprapubic operation and one the perineal. Some of the more important complications occurring before and after operation were: Diverticula of the bladder occurred in four cases. Eleven cases, all suprapubic prostatectomies, were packed for

haemorrhage. Most of these were patients that were etherized. Vesical calculi occurred in nine cases. There was one case of papilloma of the bladder. Hernia in the suprapubic scar occurred in three cases. One patient developed a strangulated inguinal hernia five days after a suprapubic prostatectomy. There was only one secondary haemorrhage requiring attention. This followed a perineal prostatectomy. There was one case of recto-urethral fistula. One case of complete incontinence of urine followed the removal of a large carcinomatous prostate.—*Jour. Am. Med. Ass.*, Dec. 20, 1924.

Studies on the Effect of Roentgen Rays on Glandular Activity—The effect on gastric secretion of the exposure of the abdominal and thoracic areas to Roentgen rays was investigated on Pawlow pouch dogs by A. C. Ivy, J. E. McCarthy and B. H. Orndoff, Chicago. Exposure of the thorax of Pawlow pouch dogs to Roentgen rays sufficient to cause a first degree burn has no effect on gastric secretion and causes no symptoms. A similar dose delivered over the lower abdomen causes a temporary anaecidity or hyponormal secretion associated with anorexia, followed by a return to normal of gastric secretion and appetite, with a progressive loss of weight and cachexia. Necropsy shows chronic ulcers of the intestine. A human erythema dose of Roentgen rays of short wave length delivered over the abdomen causes a hypernormal secretion of gastric juice lasting one or two days, followed by anorexia, hyponormal secretion and sometimes diarrhea, followed on the fifth day by normal gastric secretion and appetite. This dose causes death in from six to fourteen days in dogs that are not in perfect condition. Seventy-five per cent of a human erythema dose—the usual "unit dose" used in the therapy of malignant tumours—caused mild acute symptoms of intoxication associated with anorexia, anaecidity and hyposecretion. The observations of others on the sensitiveness of the intestinal mucosa to Roentgen rays are confirmed, the intestinal mucosa being at least twice as sensitive as the fundal mucosa of the stomach. These findings do not warrant the use of Roentgen rays for treatment of conditions in which it is desirable to reduce gastric acidity.—*Jour. Am. Med. Ass.*, Dec. 20, 1924.